GENERAL CATALOGUE **2009**

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Since its establishment in 1983, HT ITALIA's mission has always been clear: innovating in the electro technical field as well as improving the quality of its customers' work.
Today the challenge consists in combining technology with field applications following innovative and effective standards with the purpose of making environment friendly instruments featured by finish, quality, safety, design and performance of top level at a competitive price. These are the essential ingredients ***to a new balance.***

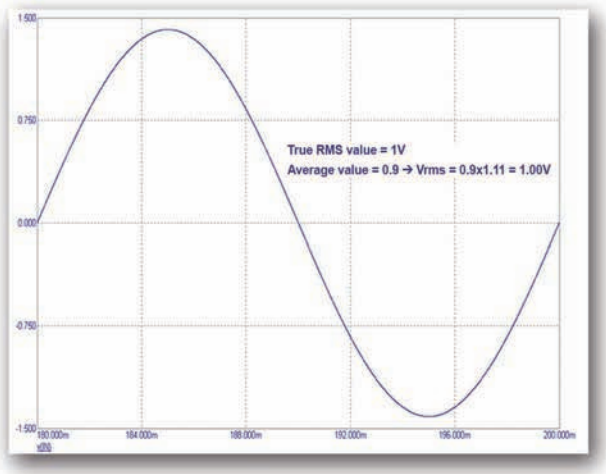
HT ITALIA reserves the right to modify products' features without any prior notice for the sake of technical improvement

Each electrical measuring instrument, before being recommended for its functions, shall grant safety conditions for the operator as fundamental requisite as for protection from instantaneous over voltage arising consequently to complex networks, short circuit instances, atmospheric discharges, etc.

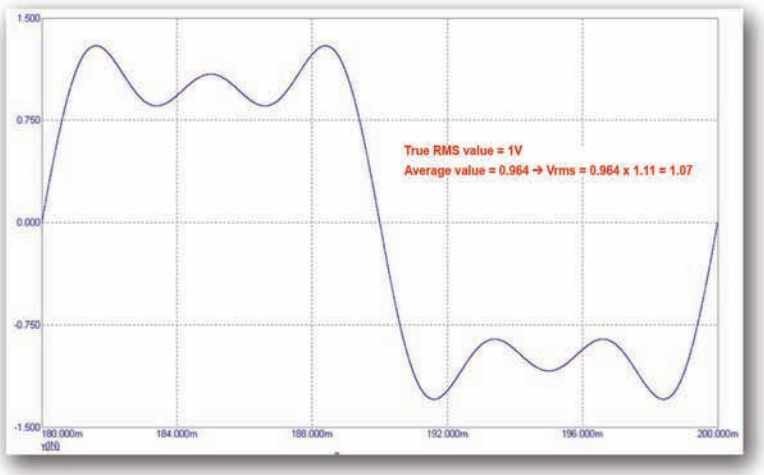
As for this subject the international standard IEC61010-1 acquired in Europe as EN61010-1 established precise regulations for the electrical equipment suitable for LV measurements (<1000VAC) providing 4 "Over Voltage Categories" defining the protection level against voltage transients of each instrument depending on the distance from the power source. The instruments belonging to the higher category require higher inner protection as they can work close to a power source.
Below a brief description as follows:

Over voltage category	Measurement type	Applications
CAT I	Measurements performed on circuits not directly connected to mains	Electronic protected equipments, measurements on circuits not derived from mains
CAT II	Measurements performed on circuits directly connected to the low voltage installation	Household appliances, portable tools and similar equipment
CAT III	Measurements performed in the building installation	Distribution boards, circuit breakers, wiring, including cables, bus-bars, junction boxes, switches, socket-outlets in the fixed installation, and equipment for industrial use
CAT IV	Measurements performed at the source of the low-voltage installation.	Electricity counters and measurements on primary overcurrent protection devices and ripple control units

Advantages in using True RMS instruments
In the modern installations both civil and industrial the use of equipment representing the so called "no-linear loads" (i.e. computer networks, variable speed devices, switching power supplies etc.) is constantly growing contributing to considerably deform the wave shape of the applied signals differentiating it more and more from the traditional sine shaped wave typical for the "linear" loads (represented by resistances, inductances or capacities).



Sine shaped wave on a linear load



Distorted wave on a non-linear load

The standard measuring instruments (multimeters and clamp meters) for measurement of "AVERAGE VALUE" AC voltages and currents permit to carry out accurate measurements only on sinusoidal waves that is to say linear loads. For measurements on no-linear loads, the harmonic components arising cause distortion of wave shapes and make it necessary to use TRMS instruments (where TRMS means True Root Mean Square) as the average value instruments, taking into account the fundamental frequency of 50 Hz only, may cause considerable errors on the reading values. On the other hand the TRMS instruments provide, in addition to the TRMS value of the fundamental, also the TRMS value of the full wave including harmonics within the bandwidth according to which they were designed.

Therefore, measuring the same quantity with instruments belonging to both families, you get identical values only in case the signal wave is purely sinusoidal. Should the wave shape be distorted the TRMS instruments provide values which are always higher than the ones of the corresponding average value instruments.
Finally the use of TRMS instruments is essential when it is necessary to carry out measurements or service on industrial installations to get real reading values of the quantities under test.

MULTIFUNCTION SAFETY TESTERS

FEATURES	ELECTRIC TESTS MAINS ANALYSES ENVIRONMENTAL PARAMETERS				ELECTRIC TESTS		
				NEW			NEW
	GSC53N	GSC57	SIRIUS 89N	COMBI 420	MAXTEST 2038	SIRIUS87	COMBI 419
Insulation with 1000VDC test voltage	•	•	•	•	•	•	•
Insulation with 500VDC test voltage	•	•	•	•	•	•	•
Insulation with 250VDC test voltage	•	•	•	•	•	•	•
Insulation with 50, 100VDC test voltage	•	•	•	•	•	•	•
Insulation with 100V to 5000VDC test voltage							
Insulation with measurement range up to 10TΩ							
Continuity of earth conductors with 200mA	•	•	•	•	•	•	•
Continuity of earth conductors with I>10A, V<12V		•			•		
Continuity of earth conductors with 10A< I <25A, V<6V							
Voltage drop of earth conductors with I>10A, V<12V		•			•		
Earth resistance with 2-wire and 3-wire methods	•	•	•		•	•	
Ground resistivity with 4-wire method	•	•	•		•	•	
Global earth resistance without RDC's tripping	•	•	•	•	•	•	•
Line/Loop impedance Phase-Phase, Phase-Neutral, Phase-PE	•	•	•	•	•	•	•
Line/Loop impedance Phase-Phase, Phase-Neutral, Phase-PE with high resolution (0.1mΩ) *(*) with IMP57 optional accessory*	•(*)	•(*)	•(*)	•(*)	•	•(*)	•(*)
Prospective short circuit current calculation	•	•	•	•	•	•	•
Contact voltage	•	•	•	•	•	•	•
RCD type A, AC Standard and Selective trip out time	•	•	•	•	•	•	•
RCD type AC Standard trip out time	•	•	•	•	•	•	•
RCD type B Standard and Selective trip out time					•		
RCD trip out current	•	•	•	•	•	•	•
Phase sequence indication	•	•	•	•	•	•	•
AUTOMATIC test (Global earth resistance, RCD trip out time, Insulation) directly on test outlet of plant				•			•
Test with remote probe *(with PR400 optional accessory)*				•			•
Wire mapping test on LAN UTP/STP, RJ45 network cables							
Withstanding test with 1000V and 2500VAC test voltage							
Withstanding test with test voltage up to 4000VAC							
Withstanding test in BURN mode							
Discharging time on DUT's plug and internal circuits							
Leakage current on machine's socket							
DC/AC TRMS voltage, AC TRMS current(*), Frequency(*), Resistance and Continuity test *(not for M70)*							
DC current *(with HT4004, HT98U transducer clamps)*							
Leakage current *(with HT96U optional accessory)*	•	•	•	•			•
Test of single and three phase photovoltaic plant's efficiency							
Measurement of electrical parameters (V, A ,W,VAR,VA, PF)	•(3)	•(3)	•(1)	•(1)			
Recording of electrical parameters (V,A,W,VAR,VA, PF, Wh)	•(3)	•(3)	•(1)				
V, A harmonic analysis up to 49th order and THD% calculation	•(3)	•(3)	•(1)	•(1)			
Voltage anomalies (sags, swells) with 10ms resolution	•(3)	•(3)	•(1)				
Measurement of environmental parameters (°C, F, %RH, Lux) *(with HT52/05, HT53/05 optional probes)*	•(3)	•(3)	•(1)	•(1)			
Recording of environmental parameters (°C, F, %RH, Lux) *(with HT52/05, HT53/05 optional probes)*	•(3)	•(3)	•(1)				
Help on line				•			•
Internal memory to save the measures		•	•	•	•	•	•
RS-232 / USB port for PC connection	•	•	•	•	•	•	•
PAGE	8-9	8-9	10	11	12	14	11

(1) Single phase installations / Single input; (3) Three phase installations / Three inputs

ELECTRIC TESTS TRMS MULTIMETERS WIRE MAPPERS				INSULATION CONTINUITY				PHOTOVOLTAIC		EARTH RESISTANCE		RCD	MACHINES SWITCHBOARDS	
					NEW	NEW		NEW	NEW	NEW		NEW	NEW	NEW
M75	M74	M73	M72	M70	ISO410	HT7051	EQUITEST 5070	SOLAR300	SOLAR200	GEO416	M71	SPEED 418	FULLTEST 4050	FULLTEST 4058N
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21	21	19	15	16	15	17	18	32-33	34	20	20	19	22-23	22-23

GSC57 - GSC53N
INTEGRATED INSTRUMENTS FOR ELECTRIC TESTS, MAINS ANALYSES ON SINGLE-PHASE AND THREE-PHASE SYSTEMS AND ENVIRONMENTAL PARAMETER MEASUREMENTS

Integrated systems to carry out:
- Verifications of LV electric systems
- Measurements and quality analyses of electric power supply
- Mains disturbances
- Measurements and analyses of environmental parameters

GENERAL CHARACTERISTICS

- Double insulation
- Weight and size: GSC57: 1700 g - 225x165x105 mm
  GSC53N: 1200 g - 225x165x105 mm
- RS232/USB optical output
- Compliance with electromagnetic compatibility standards for measuring instruments
- Power supply through batteries and external supply
- Graphic display to optimize the information displayed in one screen only, with backlighting for carrying out measurements also in poorly lit environments
- Simple use
- Multilanguage messages directly shown on the instrument's display

NOTE: the differences between GSC53N and GSC53S are only the A0050 and HTFLEX33 (3 pcs) as standard accessories

TECHNICAL SPECIFICATIONS

Verifications on Civil and Industrial Electric Systems in compliance with Standards IEC/EN 61557, VDE 0100, BS 7661 17th issue

CONTINUITY TEST ON PROTECTIVE CONDUCTORS
- test voltage with open circuit DC 4 <Uo <24 V
- test current >0.2A (R<5)
- measuring range 0.01-99.9
- basic precision ± 2% reading
- compensation of test cable resistance

INSULATION RESISTANCE MEASUREMENT
- test voltage 50, 100, 250, 500, 1000VDC
- measuring ranges:
  0.01 ÷ 99.99 MΩ for test voltage 50VDC
  0.01 ÷ 199.9 MΩ for test voltage 100VDC
  0.01 ÷ 499 MΩ for test voltage 250VDC
  0.01 ÷ 999 MΩ for test voltage 500VDC
  0.01 ÷ 1999 MΩ for test voltage 1000VDC
- basic precision ± 2% reading

VERIFICATION OF TRIPPING TIME AND CURRENT OF DIFFERENTIAL PROTECTIVE DEVICES (A, AC, GENERAL AND SELECTIVE TYPE)
- tripping current 10-30-100-300-500mA
- tripping current ramp from:
  0.5 ÷ 1.4 Idn for AC type
  0.5 ÷ 2.0 Idn for A type
- tripping time measure: $^1/_2 I_{DN}$-I_{DN}-$2I_{DN}$-$5I_{DN}$ and automatic
- basic precision ± 10% reading

MEASUREMENT OF LINE IMPEDANCE AND OF FAULT LOOP WITH CALCULATION OF THE ASSUMED SHORT-CIRCUIT CURRENT AND VERIFICATION OF THE COORDINATION OF PROTECTIONS IN TT and TN SYSTEMS
- measuring range for phase-phase, phase-neutral line impedance 0,01÷199,9Ω
- measuring range for phase-earth fault loop impedance 0,01÷1999Ω
- possibility of measuring the phase-earth fault loop without the differential switch's tripping
- indication of the measured values of Zs, Isc
- basic precision ± 5% reading
- resolution 0.1mΩ *(with optional IMP57)*

Standards and directives
The instruments are designed to carry out measurements, verifications and analyses according to:
IEC/EN61557-1
VDE 0100
VDE 0413
EN 50160
IEC/EN61010-1
BS7661 17th issue

GSC57
HV000057-0201

GSC53N
HV000053-0201

MP57
Accessory for measuring Loop Impedance with high resolution

MEASURING EARTH RESISTANCE AND GROUND RESISTIVITY
- measuring earth resistance by means of the auxiliary pins 0.01 ÷ 1999Ω
- measuring ground resistivity by means of the 4 pins (Wenner method) 0.01 ÷ 199.9kΩm
- measuring earth resistance from the socket of a TT system
- by voltage drop
- basic precision ± 2% reading

Phase sequence
- voltage 100 ÷ 400V

Direct measurement of leakage current to earth
- by means of amperometric clamps in a range of 0 ÷ 1A; resolution=1mA
- precision ± 2% reading

Verifications on Electric Systems in medical rooms *(for GSC57 only)*
CONTINUITY TEST ON PROTECTIVE CONDUCTORS>
- test voltage with open circuit Uo <12V
- test current = 10A
- measuring range 0.001 ÷ 0,999Ω
- basic precision ± 2% reading
- measuring duration = 500 tests
- 4-wire measurement

Verification of the Electrical Service Quality in compliance with standard EN50160
The instruments, suitable for carrying out measurements on single-phase and three-phase systems with or without neutral, both for balanced and unbalanced loads, show the following nominal values:
- measurable voltage up to 600 V
- current by amperometric clamps, output 1V
- frequency 50 ÷ 60 Hz
- precision (instrument) ± 0,5% reading
- precision (transients) ± 1% reading

THE INSTRUMENTS ALLOW MEASURING AND RECORDING:
- TRMS value of voltage
- TRMS value of current by means of amperometric clamps
- voltage frequency
- harmonic analysis (of voltages and currents) up to the 49th order
- voltage variations out of the set thresholds (dips and peaks) with a minimum resolution of 10ms
- active power
- reactive power
- apparent power
- active energy
- reactive energy
- power factor
- saving and storage of measures
- 40 days duration with 63 quantities and IP=15m
- Memory: 2 Mbyte

Environmental parameter analysis
- measuring and recording temperature by means of an adapter
- measuring and recording humidity by means of an adapter
- measuring and recording illuminance by means of an adapter

MEASUREMENT SELECTION:
by means of a switch and selection keys.

MANAGEMENT SOFTWARE

The instrument's management software is compatible with common Microsoft Windows operating systems. The minimum hardware includes:
- CPU type 486 or Pentium
- 16 Mbyte of RAM memory
- 50 Mbyte of mass memory (hard disk)
- Operative system Windows 98, Windows NT, Windows 2000, WindowsXP, VISTA
- Windows-compatible mouse.

ACCESSORIES	Code	GSC53N	GSC57
Standard			
- 3-terminal cable with SHUKO plug	C2033X	•	•
- Set of 4 cables + 4 alligator clips + 2 test leads	KITGSC5	•	•
- Set of 4 cables + 4 metal earth probes	KITTERRNE	•	•
- Power supply cord for 10A continuity test	C5700		•
- Flexible clamp 3000A AC, diameter 174mm, 3 pcs	HTFLEX33	•	
- Power supply adapter 230VAC/12VDC 50Hz	A0050	•	•
- PC Windows software + optical /USB cables	TOPVIEW2006	•	•
- Carrying bag	BORSA2051	•	•
- ISO9000 calibration certificate		•	•
- User manual		•	•
Optional			
- Set of 3 flexible clamps 300-3000A /1V AC, diameter 174mm	HTFLEX3003	•	•
- Set of 3 flexible clamps 1000A /1V AC, diameter 154mm	HTFLEX1000	•	•
- Standard clamp 1-100-1000A/1V AC, diameter 54mm	HT96U	•	•
- Standard clamp 10-100-1000A/1V AC, diameter 54mm	HT97U	•	•
- Standard clamp 200-2000A/1V AC, diameter 70mm	HP30C2	•	•
- Standard clamp 3000A/1V AC, diameter 70mm	HP30C3	•	•
- Standard clamp 5 -100A/1V AC, diameter 20mm	HT4005N	•	
- Set of cables for 10A continuity test, 5m length	C7000/05		•
- Set of cables for 10A continuity test, 10m length	C7000/10		•
- Case 3x1-5A/1V for connection to external CTs	HT903	•	•
- Temperature/Humidity probe	HT52/05	•	•
- Illuminance (Lux) probe	HT53/05	•	•
- Accessory for Loop impedance with high resolution	IMP57	•	•
- Power supply adapter 110VAC/12VDC 60Hz	A0053	•	•
- Set of straps for carrying belt	CN0050	•	•

SIRIUS89N
MULTIFUNCTION INSTRUMENT FOR TESTS ON ELECTRIC SYSTEMS AND MAINS ANALYSES IN SINGLE-PHASE SYSTEMS

SIRIUS89N is a multifunction instrument which allows carrying out all necessary tests on civil and industrial electric systems in compliance with IEC 60364 and a complete analysis of the mains quality on **single-phase** systems (harmonics, voltage anomalies, power checks). **SIRIUS89N** is also used to analyze environmental measurements (measurements of temperature, humidity, lighting and noise). The instrument also carries out loop/line impedance measurements and calculates the assumed short-circuit current with high-resolution 0.1mΩ) with the aid of the optional accessory **IMP57** (page 13). In this way, it is possible to obtain precise measurement results, also near MT/BT transformation cabs, where the inductive effect due to the presence of the transformer is significant, and therefore also allows correctly choosing the appropriate protections in industrial systems. On the instrument, it is possible to select preset recordings to carry out measurements in the most common situations in a very simple way. Thanks to the PC interface and to the supplied software it is possible to download the data of each measurement carried out, for a practical final print.

FUNCTIONS
Electric system test in compliance with standard IEC/EN61557-1
• Continuity of protective conductors with 200mA
• Insulation with test voltage 50, 100, 250, 500, 1000VDC
• Tripping time and current on RCDs type A, AC, General and Selective up to 500mA
• Total earth resistance without RCD tripping
• Line/loop P-N, P-P, P-PE impedance, also with high resolution (0.1mΩ) with optional accessory IMP57
• Earth resistance by voltamperometric method with probes
• 4-wire method ground resistivity measurement
• Phase sequence
• Leakage current *(with optional clamps HT96U)*
Recording and analysis
• Electric parameter measurement (voltage, current, power, energy, PF, frequency) on single-phase or three-phase balanced systems
Possible implementation for generic three-phase systems
• Recording of electric parameters with selectable integration period from 5s to 60min
• Harmonic analysis of voltages and currents up to the 49th component with calculation of THD%
• Analysis of voltage anomalies (dips, peaks) with 10ms resolution
• Numeric display, waveforms and histograms of harmonic analysis
• 5 selectable recordings with preset parameters
• 4-quadrant measurements
Recording and analyses of environmental parameters
• Air temperature measurement (°C / °F)
• Relative humidity measurement (%UR)
• Lighting measurement (Lux)
General characteristics
• Internal memory with 2Mbytes capacity
• Optical interface for connection to the PC
• Graphic LCD display with backlight
• Power supply: 6x1.5V batteries type AA LR6
• Safety: IEC/EN61010-1
• Measurement category: CAT III 600V
•Size (LxWxH): 225x165x105mm
• Weight (with batteries): 1.2kg

ACCESSORIES	Code
Standard	
- 3-terminal cable with SHUKO plug	C2033X
- Set of 4 cables + 4 alligator clips + 2 test leads	KITGSC5
- Set of 4 cables + 4 metal earth probes	KITTERRNE
- PC Windows software + optical / USB cable	TOPVIEW2006
- Carrying bag	BORSA2051
- ISO9000 calibration certificate	
- User manual	
Optional	
- Flexible clamp 3000A AC, diameter 174mm	HTFLEX33
- Clamp 1-100-1000A/1V AC, diameter 54mm	HT96U
- Clamp 10-100-1000A/1V AC, diameter 54mm	HT97U
- Clamp 200-2000A/1V AC, diameter 70mm	HP30C2
- Clamp 3000A/1V AC, diameter 70mm	HP30C3
- Temperature/Humidity probe	HT52/05
- Illuminance (Lux) probe	HT53/05
- Accessory for Loop impedance with high resolution	IMP57
- Power supply adapter 230VAC 50Hz /12VDC	A0050
- Power supply adapter 110VAC 60Hz /12VDC	A0053
- Set of straps for carrying belt	CN0050

MP57
Accessory for measuring Loop Impedance with high resolution

COMBI419 - COMBI420

COMBINED MULTIFUNCTION INSTRUMENTS FOR TESTS ON CIVIL AND INDUSTRIAL ELECTRIC SYSTEMS

Models **COMBI419** and **COMBI420** are innovative instruments for carrying out tests on electric systems in compliance with standard IEC 60364, for measuring and saving environmental parameters *(only COMBI420)* of leakage current and of electric quantities such as active power, harmonics, PF on single-phase systems *(only COMBI420)*. These instruments are extremely simple to use and have a wide range of functions which can be selected through the practical multi-language menu. Each model also allows carrying out measurements by using a remote probe (optional accessory PR400), which makes it much easier to carry out more measurements one after the other. The help on line, which can be consulted by the user and is available for all functions, provides a very useful help in connecting the instrument to the system to be tested.

FUNCTIONS	COMBI419	COMBI420
Continuity with 200mA	•	•
Insulation with 50,100,250,500,1000VDC	•	•
Tripping time of RCD type A, AC standard and selective up to 500mA	•	•
Tripping current of RCD type A, AC up to 500 mA	•	•
Loop/line P-N, P-P, P-PE impedance also with high resolution (0.1mΩ) (with optional accessory IMP57)	•	•
Total earth resistance without RCD tripping	•	•
Contact voltage	•	•
Phase sequence indication	•	•
AUTO test (total earth resistance, RCD test, insulation test) on the tested sockets	•	•
Measurement of powers and PF in single-phase systems		•
Voltage and current harmonics up to the 49th with calculation of the THD%		•
Environmental parameter measurement (temperature, humidity, Illuminance) with optional probes		•
Leakage current measurement (with optional clamp HT96U)	•	•
Activation of measurements with optional remote probe PR400	•	•
Help on line on the display	•	•
Storage of results	•	•
Optical/USB interface for connection to PC	•	•
Size (LxWxH)	222x162x57mm	222x162x57mm
Weight (with batteries)	1kg	1kg

ACCESSORIES	Code
Standard	
- 3-terminal cable with SHUKO plug	C2033X
- Set of 3 cables + 3 alligator clips + 1 test leads	UNIVERSALKIT
- Carrying bag	BORSA75N
- ISO9000 calibration certificate	
- User manual on CD-ROM	
- Quick reference guide	
Optional	
- PC Windows software + optical / USB cable	TOPVIEW2006
- Clamp 1-100-1000A/1V AC, diameter 54mm	HT96U
- Temperature/Humidity probe *(only COMBI420)*	HT52/05
- Illuminance (Lux) probe *(only COMBI420)*	HT53/05
- Remote probe	PR400
- Accessory for Loop impedance with high resolution	IMP57
- Hands-free kit	SP-0400

PR400
Optional remote probe

HT96U
clamp for AC
leakage current

NEW
COMBI419
HV000419

NEW
COMBI420
HV000420

MAXTEST2038
MULTIFUNCTION INSTRUMENT FOR TESTS ON INDUSTRIAL SYSTEMS

MAXTEST HT2038 is a portable multifunction professional instrument designed for any safety test to be carried out on civil and industrial systems, in compliance with standard IEC 60364. The model is characterized by a wide selection of measuring functions. Each result is saved in the wide internal memory, capable of containing up to 1000 measurement results. The RS-232 serial interface allows transferring the data onto the PC for analysis and printing with the aid of the dedicated software supplied. Among the other functions, the **MAXTEST HT2038** allows measuring the fault loop impedance in high-resolution TN systems (0.1mΩ) with test current of approx. 280A, very useful for evaluating the assumed short-circuit currents with high precision, also near transformation cabs, whose inductive effect is significant. The instrument also carries out continuity measurements with 10A utility in 0-type medical rooms in compliance with IEC/EN61557-1 standard.

FUNCTIONS
• Continuity of protective conductors with 200mA
• Continuity of protective conductors with 10A
• Insulation with 250, 500, 1000VDC
• Earth resistance with 3-wire or 2-wire method
• Ground resistivity
• Loop / P-N, P-P, P-PE line impedance
• Loop / P-N, P-P, P-PE high-resolution line impedance
• Prospective short circuit current
• Global earth resistance without RCD tripping
• Tripping time of RCD AC, A, B General and Selective
• Real RCD tripping current
• Contact voltage
• Frequency
• Phase sequence indication
• Percentage voltage drop on conductors due to the load
• Memory for saving results
• Calling on the display of the saved results
• RS-232 serial interface
• Weight and size: 8kg – 450x350x130mm

ACCESSORIES	Code
Standard	
- 4-terminal cable with SHUKO plug	C2034
- Test power supply cable 10A	C5700
- 4-terminal cable	C203802
- 3-terminal cable	C203803
- 4-terminal cable for earth measurement	C203804
- Cable with SHUKO plug	C203805
- Set of 4 cables + 4 probes for earth measurement + 4 alligator clips	KITTERRC-HT
- Blue probe	404-IECB
- Black probe	404-IECN
- Transport bag for accessories	B84
- Software + RS-232 serial cable	TOPVIEW
- User manual	
- ISO9000 calibration certificate	
Optional	
- Three-phase measurement adapter	C203807

MAXTEST2038
HV002038-0201

IMP57

ACCESSORY FOR MEASURING HIGH-RESOLUTION LOOP IMPEDANCE AND ASSUMED SHORT-CIRCUIT CURRENT UP TO 400kA

The accessory **IMP57** has been conceived for technical departments and measuring technicians, in order to measure, in combination with HT ITALIA instruments GSC5x, SIRIUS8x, COMBI419-420, SPEED418, SOLAR200 and HT4058N/HT4050 fault loop impedance / line impedance and to calculate the assumed short-circuit current, which is essential for determining the dimension of the protections provided in common industrial electric systems. The high generated test current (max. 200A) allows carrying out high-resolution measurements (0.1mΩ) and, therefore, obtaining correct and precise results, even near MT/BT transformers. **IMP57** consists in a practical and resistant suitcase structure, it has no display and it can be interfaced by RS232 serial connection to the above-mentioned instruments (called Master) in order to obtain the results' reading. The 4-terminal measurement allows ignoring the effect of the resistance of the supplied cables and, therefore, no preliminary calibrations are necessary.

FUNCTIONS	
Type of measurement:	P-N, P-P, P-PE Loop/Line impedance and short circuit current calculation
Resolution of measurement:	0.1mΩ(Zloop) ; 400kA (Ipsc)
Test current:	approx: 200A
Frequency range:	50Hz ± 5%
Size (LxWxH):	340x300x150mm
Weight:	4.1kg

ACCESSORIES	Code
Standard	
- 2 test cables, 3m length, with alligator clips	C7000
- RS-232 serial cable	C2001
- Carrying bag	B80
- ISO9000 calibration certificate	
- User manual on CD-ROM	
- FW upgrading CD-ROM	

SIRIUS87
MULTIFUNCTION INSTRUMENT FOR COMPLETE TESTS ON CIVIL AND INDUSTRIAL ELECTRIC SYSTEMS

SIRIUS87 is the model of the multifunction instrument range by HT ITALIA which is capable of carrying out complete tests on civil and industrial electric systems in compliance with standard IEC/EN61557-1. Tanks to its simple and intuitive use, this instrument allows saving all measurement results in its internal memory and transferring the saved data onto the PC by means of a optical interface in order to print useful measuring reports, to be attached to Declarations of Conformity, with the aid of the dedicated software supplied. **SIRIUS 87** also carries out loop/line impedance measurements and calculates the assumed short-circuit current with high-resolution (0.1mΩ) with the aid of the optional accessory IMP57. In this way, it is possible to obtain precise measurement results, also near HV/LV transformation cabs, where the inductive effect due to the presence of the transformer is significant, and therefore also allows correctly choosing the appropriate protections in industrial systems.

FUNCTIONS

- Continuity of protective conductors with 200mA
- Insulation resistance with 50,100,250, 500,1000VDC
- Line/Loop impedance Phase-Phase, Phase-Neutral, Phase-PE also with high-resolution (0.1mΩ), with optional accessory IMP57
- Prospective short circuit current
- Contact voltage
- AC voltage and frequency
- Tripping time and current on RCDs type A, AC General and Selective with 10,30,100,300,500mA
- Global earth resistance without RCD tripping
- Earth resistance by 2-wire and 3-wire method
- Ground resistivity with 4-wire method
- Phase sequence indication
- Storage in memory up to 350 measurement results
- Optical/USB interface for communication to PC
- Power supply: 6x1.5V alkaline batteries type AA LR03
- Safety: IEC/EN61010-1, CAT III 265V (to ground), CAT III 460V (between inputs)
- Size (LxWxH): 222x165x105mm
- Weight (included batteries): 1.2kg

ACCESSORIES	Code
Standard	
- 3-terminal cable with SHUKO plug	C2033X
- Set of 4 cables + 4 alligator clips + 2 test leads	KITGSC5
- Set of 4 cables + 4 metal earth probes	KITTERRNE
- PC Windows software + optical / USB cable	TOPVIEW2006
- Carrying bag	BORSA2051
- ISO9000 calibration certificate	
- User manual	
Optional	
- Accessory for Loop impedance with high resolution	IMP57
- Set of straps for carrying belt	CN0050

MP57
Accessory for measuring Loop Impedance with high resolution

M72 - ISO410
MULTIFUNCTION INSTRUMENT FOR MEASURING INSULATION AND CONTINUITY OF PROTECTIVE CONDUCTORS

Models **M72** and **ISO410** are innovative instruments for carrying out insulation resistance measurements on civil and industrial electric systems in compliance with standard IEC/EN61557-1 but with a great flexibility for use in compliance with standards such as IEC/EN60204-1 (electric machines) or IEC/EN60439-1 (ANS electric panels). Model **ISO410**, differently from M72, allows storing each measurement result in its own internal memory and downloading the saved data onto the PC with the aid of the dedicated software. **ISO410** also allows carrying out measurements by using a remote probe (optional accessory PR400), which makes it much easier to carry out more measurements one after the other. Model **M72** is provided with a powerful multimeter function for measuring quantities in real efficient (TRMS) value, which is useful when solving any kind of electric problem.

FUNCTIONS	M72	ISO410
Continuity with 200mA	•	•
Insulation with 250, 500VDC	•	•
Insulation with 50, 100, 250, 500, 1000VDC		•
Insulation measuring range	0.01MΩ-2GΩ	0.01MΩ-2GΩ
Automatic discharge of tested item	•	•
Measuring probe self-calibration	•	•
Limit setting on measurement		•
Phase sequence indication	•	
DC/AC TRMS voltage	•	
DC/AC TRMS current	•	
Resistance and continuity test	•	
Data HOLD, MAX/MIN/AVG	•	
Voltage and current PEAK measurement	•	
Leakage current measurement *(with optional clamp HT96U)*	•	
Activation of measurements *(with optional remote probe PR400)*		•
Help on line on the display		•
Storage of results		•
Optical/USB interface for connection to PC		•
Safety	EN61010-1	EN61010-1
Measurement category	CAT III 265V	CAT III 265V
Power supply	4x1.5V bat. type AA	6x1.5V bat. type AA
Size (LxWxH) mm	240x100x45	222x162x57
Weight (with batteries)	450g	1kg

ACCESSORIES	Code
Standard	
- Set of 2 cables with lest leads + 2 alligator clips *(only M72)*	KIT0075
- Set of 3 cables + 3 alligator clips + 1 test leads *(only ISO410)*	UNIVERSALKIT
- Carrying bag *(only M72)*	BORSA75
- Carrying bag *(only ISO410)*	BORSA75N
- ISO9000 calibration certificate	
- User manual on CD-ROM *(only ISO410)*	
- Quick reference guide *(only ISO410)*	
Optional	
- PC Windows software + optical / USB cable *(only ISO410)*	TOPVIEW2006
- Clamp 1-100-1000A/1V AC, diameter 54mm *(only M72)*	HT96U
- Clamp 400A AC, diameter 30mm *(only M72)*	HT4003
- Clamp 5-100A/1V AC, diameter 20mm *(only M72)*	HT4005N
- Clamp 10-100A/1V AC/DC, diameter 30mm *(only M72)*	HT4004
- Adapter for connection of HT96U, HT4004, HT4005N clamps *(only M72)*	NOCANBA
- Remote probe *(only ISO410)*	PR400
- Hands-free kit *(only ISO410)*	SP-0400

PR400
Optional remote probe

M72
HV000072

NEW
ISO410
HV000410

M70

COMBINED INSTRUMENT FOR MEASURING INSULATION AND CONTINUITY OF PROTECTIVE AND EQUIPOTENTIAL CONDUCTORS

Model **M70** is an innovative instrument, perfectly portable and mainly suitable for measuring insulation resistance with test voltage up to 1000VDC and continuity of protective and equipotential conductors with a current of 200mA, in compliance with the requirements of standard IEC/EN61557-1 in civil and industrial electric systems. The instrument can also be used for measuring insulation on machines and electric panels in compliance with standards IEC/EN60204-1 and IEC/EN60439-1. Thanks to the LOCK function, insulation measurement can be carried out continuously over time, thus testing the insulation of the item being tested, by carrying out duration tests. Measurement with programmable timer between 2 and 60s is also possible. The functions also include measurement of AC/DC voltage, measurement of resistance and continuity test with buzzer, as a common digital multimeter. The wide and backlit custom display for comfortably reading measures also in poorly lit environments, the ergonomic structure with small overall dimensions, the innovative electronic selector and the extremely light weight make **M70** an indispensable instrument for all industrial installers and/or testers.

FUNCTIONS

- Insulation with 250, 500, 1000VDC test voltage
- Measuring range up to 4GΩ
- Automatic discharge of tested item
- LOCK function for continuous measurements
- Insulation with programmable timer between 2 and 60s
- Continuity of protective conductors with 200mA
- Measuring probe self-calibration
- AC/DC voltage up to 600V
- Resistance and continuity test with buzzer
- Wide backlit display
- AutoPowerOFF

TECHNICAL SPECIFICATIONS

Insulation resistance	
Test voltage:	250, 500, 1000VDC
Measuring range:	0.001MΩ ÷ 4GΩ
Resolution:	0.001MΩ ÷ 1MΩ
Basic accuracy:	±(2.0%rdg + 5dgt)
Overload protection:	605Vmaxrms
Continuity of protective conductors	
Test current:	>200mADC
Measuring range:	0.01© ÷ 19.99Ω
Resolution:	0.01Ω
Basic accuracy:	±(2.0%rdg + 3dgt)
Overload protection:	605Vmaxrms
AC/DC voltage	
Measuring range:	0.1V ÷ 600V
Resolution:	0.1mV
Basic accuracy:	±(0.5%rdg + 1dgt)
Overload protection:	605Vmaxrms

GENERAL SPECIFICATIONS

Display with backlighting:	LCD, 4 dgt, 10000 points
Power supply:	4x1.5V batteries type AA
AutoPowerOFF:	after 15 min of idleness
Safety:	IEC/EN61010-1
Measurement category:	CAT III 550V
Size (LxWxH):	240x100x45mm
Weight (with batteries):	450g

ACCESSORIES

Standard

- Set of 2 cables + 2 alligator clips + 1 test lead
- Batteries
- Carrying bag
- CE declaration of conformity
- User manual

M70
HV000070

ISOTEST HT7051
METER FOR INSULATION RESISTANCE MEASUREMENTS PROGRAMMABLE UP TO 5KVDC

HT7051 is a meter designed to perform professional insulation resistance measurements with test voltage up to 5kV DC. This feature permits a wide range of applications in industrial plants as maintenance of rotating equipments, transformers, high voltage insulation systems, electrical cables, etc. Automatic, manual timer and programmable modes are available for both models. In programmable mode the user can be select up to three ramp features in order to completely customize the times and values of test voltage application. Other integrated available measurements are the Polarization Index (PI) and the Dielectric Absorption Ratio (DAR). The model have internal memory to save the results and a PC RS-232 interface for PC connection. All effort have been spent to create products which can be adjusted according to the standard amendments in the field of insulation measurements.

FUNCTIONS

- Insulation test with test voltage from 100 to 5kV DC
- Measurement range up to 10TΩ
- Measurements with fixed test voltages
- Up to 3 voltage/time test ramps available in programming mode
- SMOOTH feature for stable measurement results
- Dielectric leakage current measurements
- Polarization index (P.I.) measurement
- Dielectric Absorption Ratio (D.A.R) measurement
- Discharging capacitance measurement
- DC/AC TRMS voltage measurement up to 600V
- Rechargeable NiMH internal battery
- GUARD input terminal
- Automatic object discharge after test

GENERAL SPECIFICATIONS

Display:	LCD custom with backlight and bargraph
External power supply:	220-240V, 50/60Hz, 20VA
Internal power supply:	rechargeable NiMH battery
Protection fuse:	T 200mA H 250V
Battery life:	> 1000 test (@ 5kV on 5M)
AutoPowerOFF:	After 5 minutes of idleness
Internal memory:	700 locations
Serial interface:	RS-232 optoinsulated
Safety:	IEC/EN61010-1, IEC/EN61557-1
Insulation :	double insulation
Pollution degree :	2
Mechanical protection :	IP53 (closed case)
Category of measure:	CAT IV 600V (to ground)
Size (LxWxH):	360x310x195mm
Weight:	3.5kg

ACCESSORIES	Code
Standard	
- Set of 3 cables with alligator clips + 2 cables with test leads	KIT14000
- Power supply cord	C7001
- Carrying bag for accessories	BORSA2000N
- PC software + RS-232 serial cable	TOPVIEW
- ISO9000 calibration certificate	
- User manual	

NEW

HT7051
HV007051

EQUITEST5070
TESTER FOR RESISTANCE OF PROTECTIVE AND EQUIPOTENTIAL CONDUCTORS FOR MEDICAL ROOMS

EQUITEST5070 is designed to verify equipotential conductors in medical rooms according to relative standards and to verify continuity and voltage drops in the circuits of the electric equipment of machines in compliance with IEC/EN60204-1. It also allows verifying the continuity between the metal reinforcements of reinforced concrete structures. The measuring method is with 4 wires, to eliminate external resistances or resistances caused by contacts.
USE: possibility of use for continuity tests on electric appliances for medical use. An open-circuit test voltage, variable between 6 and 12V (DC or AC) is applied with a test current of 10A. – Possibility of use for tests on switchboard panels according to IEC/EN60439-1 to detect a low resistance between the input terminal of the protective conductor and the body of the corresponding appliance, or to test the suitability of contact of screwed connections. – Possibility of use when checking continuity of concrete structure.

FUNCTIONS

- Continuity of protective conductors with current >10AAC and voltage under no load >6V and <12VAC
- Voltage drop of protective conductors with current >10AAC in compliance with IEC/EN60204-1
- 4-wires measuring method without resistance compensation of measuring cables
- Internal memory with 350 locations
- RS-232 serial output for connection to the PC
- Power supply: 230V/50Hz electrical mains
- Safety: IEC/EN61010-1, CAT III 300V
- Insulation: double insulation
- Polluting level: 2
- Reference standards: IEC/EN60204-1, IEC/EN60439-1
- Size (LxWxH) mm: 220x230x85
- Weight: approx. 2kg

TECHNICAL SPECIFICATIONS

Continuity of earth conductors	
Test current:	>10A AC
Open voltage:	>6VAC, <12VAC
Measurement range:	0.001Ω ÷ 0.999Ω
Resolution:	0.001Ω
Basic accuracy:	±(1.0%rdg + 2dgt)
Voltage drop test with 10A	
Measuring range:	0.01V ÷ 9.99V
Resolution:	0.01V
Basic accuracy:	±(1.0%rdg + 2dgt)

ACCESSORIES	Code
Standard	
- 2 test cables, 3m length, with alligator clips	C7000
- Power supply cord	C2032-2MM
- Carrying bag for accessories	WP1991N
- ISO9000 calibration certificate	
- User manual	
Optional	
- Windows software + RS-232 serial cable	TOPVIEW

M73 - SPEED418
MULTIFUNCTION INSTRUMENTS FOR TOTAL EARTH RESISTANCE MEASUREMENT AND TESTS ON DIFFERENTIAL SWITCHES

Models **M73** and **SPEED418** are innovative instruments for measuring the total earth resistance without causing the differential switch's tripping (typically used in TT systems as an alternative to earth measurement with probes) and for evaluating the tests on differential switches on civil and industrial electric systems. Model **SPEED418**, differently from **M73**, allows storing each measurement result in its own internal memory and downloading the saved data onto the PC with the aid of the dedicated software. **SPEED418** also allows carrying out measurements by using a remote probe (optional accessory PR400), which makes it much easier to carry out more measurements one after the other. Model **M73** is provided with a powerful multimeter function for measuring quantities in Real Efficient Value (TRMS), which is useful when solving any kind of electric problem.

FUNCTIONS	M73	SPEED418
Tripping time on RCD type A, AC General and Selective with currents 10, 30,100, 300, 500mA		•
Tripping time on RCD type AC General with currents 30, 30x5, 100, 300mA	•	•
Tripping current on RCD type A, AC General and Selective		•
Global earth resistance without RCD tripping		•
Line/Loop impedance, also with high-resolution (0.1mΩ)*(with optional accessory IMP57)*		•
Prospective short circuit current	•	•
Phase sequence indication	•	•
DC/ACTRMS voltage	•	
DC/AC TRMS current	•	
Resistance and continuity test	•	
Data HOLD, MAX/MIN/AVG	•	
Voltage and current PEAK measurement	•	
Leakage current measurement *(with optional clamps HT96U)*	•	
Activation of measurements *(with optional remote probe PR400)*		•
Help on line on the display		•
Storage of results		•
Optical/USB interface for connection to PC		•
Safety	EN61010-1	EN61010-1
Measurement category	CAT III 265V	CAT III 265V
Power supply	4x1.5V	6x1.5V
Size (LxWxH) mm	240x100x45	222x162x57
Weight (with batteries)	450g	1kg

ACCESSORIES	Code
Standard	
- 2-terminal cable with SHUKO plug *(only M73)*	C2075
- 3-terminal cable with SHUKO plug *(only SPEED418)*	C2033X
- Set of 2 cables with lest leads + 2 alligator clips *(only M73)*	KIT0075
- Carrying bag *(only M73)*	BORSA75
- Carrying bag *(only SPEED418)*	BORSA75N
- ISO9000 calibration certificate	
- User manual on CD-ROM *(only SPEED418)*	
- Quick reference guide *(only SPEED418)*	
Optional	
- PC Windows software + optical / USB cable *(only SPEED418)*	TOPVIEW2006
- Set of 3 cables + 3 alligator clips + 1 test leads *(only SPEED418)*	UNIVERSALKIT
- Clamp 1-100-1000A/1V AC, diameter 54mm *(only M73)*	HT96U
- Clamp 400A AC, diameter 30mm *(only M73)*	HT4003
- Clamp 5-100A/1V AC, diameter 20mm *(only M73)*	HT4005N
- Clamp 10-100A/1V AC/DC, diameter 30mm *(only M73)*	HT4004
- Adapter for connection of HT96U, HT4004, HT4005N clamps *(only M73)*	NOCANBA
- Remote probe *(only SPEED418)*	PR400
- Hands-free kit *(only SPEED418)*	SP-0400

M73
HV000073

NEW

SPEED418
HV000418

M71 - GEO416
INSTRUMENTS FOR MEASURING EARTH RESISTANCE AND GROUND RESISTIVITY

Models **M71** and **GEO416** are innovative instruments for measuring ground resistance with 2-wire and 3-wire methods and ground resistivity *(only GEO416)* with 4-wire method in compliance with reference standards. The instruments allow carrying out measurements with a wide measuring range (50kΩ) and an efficient internal compensation of the disturbance effects present on systems. Model **GEO416**, differently from model **M71**, allows storing each measurement result in its own internal memory and to download the saved data with the aid of the dedicated software.

FUNCTIONS	M71	GEO416
2-wire earth measurement	•	•
3-wire earth measurement	•	•
Measuring range	0.01Ω - 50kΩ	0.01Ω - 50kΩ
4-wire method ground resistivity		•
Compensation of disturbance voltages	•	•
Compensation of test cables	•	•
Storage of results		•
Optical/USB interface for connection to PC		•
Safety	EN61010-1	EN61010-1
Measurement category	CAT III 240V	CAT III 265V
Power supply	4x1.5V Type AA	6x1.5V Type AA
Size (LxWxH) mm	240x100x45	222x162x57
Weight (with batteries)	630g	1kg

ACCESSORIES	Code
Standard	
- Set of 3 cables + 3 alligator clips 2 metal probes *(only M71)*	KIT0071
- Set of 4 cables + 4 metal probes *(only GEO416)*	KITTERRNE
- Set of 4 alligator clips *(only GEO416)*	COC4-UK
- Carrying bag *(only M71)*	SP-6085
- Carrying bag *(only GEO416)*	BORSA2000N
- ISO9000 calibration certificate	
- User manual on CD-ROM *(only M71)*	
- Quick reference guide *(only M71)*	
Optional	
- PC Windows software + optical / USB cable *(only GEO416)*	TOPVIEW2006

M74 - M75
COMBINED INSTRUMENTS FOR SAFETY TESTS, MULTIMETER FUNCTIONS AND CHECKING OF LAN NETWORK WIRE MAPPING

Models **M74** and **M75** are innovative instruments with all the characteristics of a multimeter with real efficient (TRMS) value, verification tests on civil systems and mapping check on LAN network cables (only M75) in one single unit. The ergonomic and attractive shapes, the innovative electronic function selector, the easiness and rapidity of use when carrying out tests make these instrument suitable for any kind of electric installer.

FUNCTIONS	M74	M75
Continuity with 200mA	•	•
Insulation with 250, 500VDC	•	•
Tripping time on RCDs type AC General, 30mA, 30x5mA, 100mA, 300mA	•	•
Global earth resistance without RCD tripping	•	•
AUTO function (global earth resistance, RCD test, insulation) on the tested socket	•	•
Phase sequence with 1 and 2 leads	•	•
Complete test on LAN network cable mapping with RJ45		•
DC/AC TRMS voltage	•	•
DC/AC TRMS current	•	•
Resistance and continuity test	•	•
Data HOLD, MAX/MIN/AVG	•	•
Voltage and current PEAK measurement	•	•
Leakage current measurement *(with optional clamps HT96U)*	•	•
Safety	EN61010-1	EN61010-1
Measurement category	CAT III 550V	CAT III 550V
Power supply	4x1.5V Type AA	4x1.5V Type AA
Size (LxWxH) mm	240x100x45	240x100x45
Weight (with batteries)	450g	450g

ACCESSORIES	Code
Standard	
- Set of 2 cables with test leads + 2 alligator clips	KIT0075
- 2-terminal cable with SHUKO plug	C2075
- Clamp 400A AC, diameter 30mm *(only M75)*	HT4003
- LAN remote unit #1 *(only M75)*	CH1
- LAN remote unit #2 *(only M75)*	CH2
- Set of 3 FTP patch cables RJ45 *(only M75)*	
- Carrying bag	BORSA75
- ISO9000 calibration certificate	
- User manual on CD-ROM	
- Quick reference guide	
Optional	
- Clamp 1-100-1000A/1V AC, diameter 54mm	HT96U
- Clamp 400A AC, diameter 30mm	HT4003
- Clamp 5-100A/1V AC, diameter 20mm	HT4005N
- Clamp 10-100A/1V AC/DC, diameter 30mm	HT4004
- Adapter for connection of HT96U, HT4004, HT4005N clamps	NOCANBA
- LAN remote unit #3 *(only M75)*	REM3
- LAN remote unit #4 *(only M75)*	REM4
- LAN remote unit #5 *(only M75)*	REM5
- LAN remote unit #6 *(only M75)*	REM6
- LAN remote unit #7 *(only M75)*	REM7
- LAN remote unit #8 *(only M75)*	REM8
- 6x LAN remote units # - #8 *(only M75)*	REM38

M74
HV000074

M75
HV000075

FULLTEST4058N - FULLTEST4050
MULTIFUNCTION INSTRUMENTS FOR TESTS ON ELECTRIC MACHINES (IEC/EN60204-1: 2006) AND ELECTRIC PANELS (IEC/EN60439-1)

Models **FULLTEST4058N** and **FULLTEST4050 have been designed to perform the necessary verifications** in the industrial sector on electric machines and PTTA-type electric panels according to the relevant reference standards IEC/EN60204-1:2006 and IEC/EN60439-1. Thanks to its superior characteristics, **FULLTEST4050** also allows carrying out tests with a higher flexibility of use, and therefore, to completely or partially comply with other standards of the sector. Each instrument is housed in a handy and solid suitcase made of rigid plastic, which adequately protects the instrument from shocks. **FULLTEST4058N** is provided with a wide custom display for comfortably reading the measurement results

FUNCTIONS	HT4058N	HT4050
Continuity of protection circuit with I>10A, V<12VCA	•	•
Continuity of protection circuit with I>10A, V<6VCA		•
Insulation resistance with voltage 500V DC	•	•
Withstanding with test voltage 1000V, 2500VAC	•	•
Withstanding with programmable test voltage up to 4000VAC		•
Loop / Line Impedance with high resolution *(with optional accessory IMP57)*	•	•*(*)*
Programmable timer and limit thresholds programmable according to measurements	•	•
Inner capacity and on plug discharge time	•	•
Leakage current on instrument plug		•
Operating test of current on plug		•
Red LED display on front panel		•
Wide custom LCD display	•	
Internal memory and RS-232 serial interface	•	•
Safety	EN61010-1	EN61010-1
Measurement category	CAT III 240V	CAT II 265V
Power supply	230V/50Hz	230V/50Hz
Size (LxWxH) mm	330x410x180	300x300x150
Weight	450g	1Kg

(*) Upgrade available from first half of 2009. Contact export dpt of HT ITALIA

Withstanding test with 1000V AC	
Test voltage:	>1000V AC 50Hz
Ouptut power:	>500VA
Leakage current threshold:	0.5 ÷ 500mA *(HT4050)*
Programmable timer:	1s ÷ 60min *(HT4050)* 3s÷ 10min *(HT4058N)*
Accuracy:	±(5%rdg + 3dgt) *(HT4050)* ±(2%rdg + 2dgt) *(HT4058N)*

Withstanding test with test voltage >1000V AC	
Test voltage:	>4000V AC 50Hz *(HT4050)* >2500V AC 50Hz *(HT4058N)*
Ouptut power:	>50VA
Leakage current threshold:	0.1 ÷ 10mA *(HT4050)* 0.5 ÷ 20mA *(HT4058N)*
Programmable timer:	1s ÷ 60min *(HT4050)* 3s ÷ 10min *(HT4058N)*
Accuracy:	±(5%rdg + 3dgt) *(HT4050)* ±(2%rdg + 2dgt) *(HT4058N)*

Insulation test with 500VDC	
Test voltage:	>500VDC
Measurement range:	0.0 ÷ 99.9MΩ *(HT4050)* 0.0 ÷ 199.9MΩ *(HT4058N)*
Programmable timer:	1s ÷ 60min *(HT4050)* 10s ÷10min *(HT4058N)*
Accuracy:	±(2%rdg + 3dgt) *(HT4050)* ±(2%rdg + 2dgt) *(HT4058N)*
Resolution:	0.01MΩ *(HT4050)* 0.01 ÷ 0.1MΩ *(HT4058N)*

IMP57
Accessory for measuring Loop Impedance with high resolution

NEW

FULLTEST4058N
HV040581

Resistance of protection circuit with I>10A, V<12VAC	
Test voltage / test current::	<12VAC / >10A AC
Resistance measurement range:	0.000 ÷ 1.000Ω *(HT4050)* 0.0 ÷ 9.999Ω *(HT4058N)*
Accuracy:	±(2%rdg + 3dgt) *(HT4050)* ±(2%rdg + 2dgt) *(HT4058N)*

Resistance of protection circuit with I>10A, V<6VAC *(only HT4050)*	
Test voltage / test current::	<6VAC / >10A AC
Resistance measurement range:	0.000 ÷ 1.000Ω
Programmable timer:	1s ÷ 15s
Accuracy:	±(2%rdg + 3dgt)

Continuity of protection circuit (in compliance with IEC/EN60204-1:2006)	
Test voltage / test current::	<12VAC / >10A AC
Resistance and Line/Loop impedance measurement range:	0.000 ÷ 9.999Ω
PE conductor section:	0.5 ÷ 16mm^2
Nominal current protection device:	6 ÷ 63A
Type of protection device:	Curve B and C
Accuracy:	±(2%rdg + 2dgt)

Inner capacity and on plug discharge time	
Residual voltage limits:	60V, 120V
Discharge time limits:	1s, 5s
Accuracy:	±(5%rdg + 1dgt) *(HT4050)* ±(5%rdg + 3dgt) *(HT4058N)*
Max. input voltage:	596V *(HT4050)* 565V *(HT4058N)*

GENERAL SPECIFICATIONS	
Serial interface:	RS-232
Internal memory:	350 locations *(HT4050)* 999 locations *(HT4058N)*
Safety:	IEC/EN61010-1
EMC:	IEC/EN61326-1 +A1+A2+A3
Insulation:	Double insulation
Pollution degree :	2

STANDARD ACCESSORIES HT4050	Code
- 4-wire connector for continuity test	C4050/04
- Set of 4 cables+4 alligator clips+1 test leads	KITFULLTEST
- Gun terminal for withstanding test	PISTOLA
- Carrying bag for accessories	BORSA2000
- Windows software + RS-232 serial cable	TOPVIEW
- ISO9000 calibration certificate	
- User manual	

STANDARD ACCESSORIES HT4058N	Code
- Power supply cord	C7001
- Set of 4 cables+4 alligator clips+1 test leads	KITFULLTEST
- Set of 2 cables + 2 fixed alligator clips, 3m	C7000
- Set of 2 cables with test leads + 1 alligator clip	KIT13300WS
- Windows software + RS-232 serial cable	TOPVIEW
- ISO9000 calibration certificate	
- User manual	

OPTIONAL ACCESSORIES	Code
- Accessory for line impedance with high resolution	IMP57

IMP57
Accessory for measuring Loop Impedance with high resolution

HT2051-HT2052
STEP/CONTACT VOLTAGE METER

The two models **HT2051** and **HT2052** are, respectively, the power unit with microprocessor and the voltage unit necessary for carrying out Step and Contact voltage measurements, further to earth resistance measurements, in industrial electric systems typical of MT and BT (TN systems, transformation cabs). The two units combined, duly synchronized, can work AUTOMATICALLY, allowing measurements to be carried out also by one operator only. Therefore, while **HT2051** supplies the necessary test current and the positive/negative phases (0, 1, 2,) cyclically, **HT2052** recognizes this sequence and, with the correct fault current value set, carries out the Step/Current measurements and shows them on the display. These measurements may be directly printed or saved in the memory of **HT2052** to be later transferred and analyzed by the PC.

FUNCTIONS

HT2051: power unit

- High protection grade with differential relay, inner temperature control system, power circuit continuity control system
- Limit contact voltage control for operator's safety
- Digital display of voltage and current
- Manual and automatic (with HT2052) operating mode in the generation of sequences (0, 1, 2) of test current (max. 35A)
- High output power
- Synchronization with control unit HT2052

HT2052: voltage unit

- Input impedance selection: 1MΩ, 1kΩ from keyboard
- Setting of fault earth current/test current relationship
- Setting of step/contact voltage threshold values
- Manual and automatic (with unit HT2051) operating modes
- Compensation of disturbance voltages on measurement (Erbacher method).
- Voltage measurement
- Earth resistance measurement
- Clock function
- In-built serial printer for totally/partially printing results
- Storage of more than 350 measures
- Connection to PC by means of in-built RS-232 port
- Software in Windows environment for analyses from PC of stored results

TECHNICAL SPECIFICATIONS

HT2051: power unit

- Power supply: max. 230V/16A ; 50 Hz
- Output power: max. 3.5 kVA
- Adjustment of TRMS output voltage in three ranges (400V, 200V, 100V)
- Output correction: max. 35A (400V), max. 17.5A (200V), max. 8.75A (100V)
- Voltage measurement: range 0÷400VCA
- Resolution: 1V
- Accuracy: ±(2% reading + 2 digits)
- Current measurement: 0 ÷ 19.9A AC
  Resolution: 10mA
  Accuracy: ±(2% reading + 2 digits)
- Current measurement: 20.0 ÷ 35.0A AC
  Resolution: 100mA
  Accuracy: ±(2% reading + 2 digits)
- Internal memory: approx. 1750 current measures
- Display: LCD, $3^{1}/_{2}$ digits, height 21mm
- Temperature range: 0÷60°C
- Size (LxWxH): 670x280x400 mm
- Weight: 57kg (without accessories)
- Safety: IEC/EN61010-1
- Overvoltage category: CAT II 400V
- Insulation: class 1

HT2052: voltage unit

- Voltage measurement: range 0÷400VCA
- Resolution: 0.001 ÷1V
- Accuracy: (1% reading + 2 digits)
- Input impedance: 1MΩ/1kΩ, selectable (at 50Hz)
- Operating modes: Manual/Automatic
- RS-232 port: 2400, 4800, 9600 Baud
- Display: LCD, alphanumeric
- Memory: approx. 350 measures
- Print: dot matrix, 24 characters per line
- Power supply: 4x1.5V batteries IEC LR14
- Battery autonomy: approx. 170 hours for measurement, approx. 70 prints
- Temperature range: 0 ÷ 60°C
- Size (LxWxH): 160x75x235 mm
- Weight: 1.6kg (with batteries)
- Reference standards: IEC/EN61010-1
- Overvoltage category: CAT II 400V
- Insulation: class 1

ACCESSORIES

Standard

- 1 winding system with 4mm² cable, L=100m
- 3 metal probes, L=1m
- 1 cable 4mm², L=10m with alligator clips
- 1 cable 4mm², L= 3m with alligator clips
- 1 hammer, 1.5kg
- Couple of test leads for HT2052
- 2 weight, 25kg
- TOPVIEW Windows software + RS-232 serial cable
- Carrying bag for accessories
- ISO9000 calibration certificates
- User manuals

POWER QUALITY ANALYZERS and DATA LOGGERS

	POWER QUALTY ANALYZERS			DATA LOGGERS			
FUNCTIONS	PQA823	PQA824	VEGA76	XL423	XL424	XL421	XL422
AC TRMS voltage in single phase plants	•	•	•	•	•		
AC TRMS voltage in three phase plants	•	•	•		•		
AC TRMS current in single phase plants	•	•	•			•	•
AC TRMS current in three phase plants	•	•	•				•
AC TRMS voltage, current, power, energy, PF in single phase plants	•	•	•				
AC TRMS voltage, current, power, energy, PF in three phase plants	•	•	•				
Neutral to ground voltage	•	•					
DC voltage	•	•	•				
DC current	•	•	•				
Neutral current	•	•	calculated				
Phase sequence indication	•	•	•				
Voltage unbalance (NEG%, ZERO%) and Flicker (Pst, Plt)	•	•					
Measurements by external CTs and VTs	•	•	•				
Voltage/current waveforms with selectable pages	•	•	•				
Voltage/current harmonic histograms and THD% calculation	•	•	•				
Voltage/current vectorial diagram	•	•					
Recording analysis with selectable integration period IP	•(1s-60m)	•(1s-60m)	•(5s-60m)	•(1s-60m)	•(1s-60m)	•(1s-60m)	•(1s-60m)
Simultaneous recording of all available analysis	•	•	•				
Max number of selectable parameters for simultaneous recording	251	251	63	1	3	1	3
Voltage/current harmonic analysis up to 49th order	•	•	•				
Complete EN50160 analysis	•	•					
Voltage anomalies (sags, swells) from 10ms @50Hz with selectable thresholds	•	•	•				
Inrush currents of electrical motors	•	•					
Voltage fast transients (spikes) (5µs resolution, 200kHz sampling rate)		•					
Recording duration indication	•	•	•				
Predefined and customized recording settings	•	•	•				
“Touch screen” LCD display	•	•					
Display resolution (pxl)	320x240	320x240	128x128				
Colour display	•	•					
Power supply by rechargeable battery	•	•	Alkaline	Alkaline	Alkaline	Alkaline	Alkaline
Power supply by external AC/DC adapter	•	•	•				
Auto Power OFF	•	•	•				
Internal memory size	15Mb	15Mb	2Mb	1 Mb	1 Mb	1 Mb	1 Mb
External Compact Flash memory	•	•					
USB port for external memory stick	•	•					
Approx. memory duration (in days @ IP=15min @ max parameters)	110	110	40	365(60s)	365(60s)	365(60s)	365(60s)
PC interface	USB	USB	RS232	RS232	RS232	RS232	RS232
Contextual help at display on each screen	•	•					
Saving of recordings and snapshots	•	•	•				
Protection password on recordings	•	•	•				
Size (mm)	235x165x75	235x165x75	225x165x105	120x80x43	120x80x43	120x80x43	120x80x43
Weight (included batteries)	1 Kg	1 Kg	1,5 Kg	0,5 Kg	0,5 Kg	0,5 Kg	0,5 Kg
Safety in compliance with IEC/EN61010-1	•	•	•	•	•	•	•
Quality network standard reference	EN50160	EN50160					
PAGE	26	26	28	31	31	30	30

PQA823 - PQA824

PROFESSIONAL POWER QUALITY ANALIZERS FOR MEASURING AND RECORDING MAINS PARAMETERS IN COMPLIANCE WITH STANDARD EN50160

The instruments **PQA823** and **PQA824** provide the solution, with an innovative approach to meet the needs of professional technical departments and testers as regards measuring and recording generic single-phase and three-phase electric mains parameters, further to solving typical problems of the industrial sector (mains quality, power supply switching, PC network faults, non-linear circuit analysis, system correction, motor starting, etc.). Models are provided with a wide TFT graphic color display (320x240 pxl) with "touch screen". The user interface has identification icons which provide a simple and intuitive selection method of internal parameters. Each instrument allows displaying the parameters in multiple numeric and graphic modes for an easy harmonic analysis. The graphic function "Vector diagram" also allows immediately evaluating the reciprocal phase displacement between the input voltage and current signals, thus defining the nature of loads. The high-capacity internal memory of each model, approx. 15Mbytes, allows saving the data of all recordings for a high number of consecutive days (approx. 1 month with 251 quantities selected and integration period of 15 minutes), but the memory of each instrument is extensible, at all times, by inserting external Compact Flash memories and also by transferring data onto USB memory sticks for a practical management of the saved data.

FUNCTIONS	PQA823	PQA824
Simultaneous measurement of mains parameters on single-phase and three-phase 3-wire and 4-wire systems	•	•
5 voltage input channels and 4 current input channels. Numeric and graphic display (waveform)	•	•
Voltage and current vector diagram	•	•
Voltage and current harmonic analysis up to 49th order with THD% calculation	•	•
Recording of voltage anomalies (sags, swells) with 10ms resolution @50Hz	•	•
Flicker analysis in compliance with EN50160	•	•
Recording of fast voltage transients with 5µs resolution		•
Recording of inrush currents with 10ms resolution	•	•
Input voltage unbalance analysis	•	•
Selectable integration period between 1s and 60min	•	•
Predefined and custom recording settings	•	•
TFT color display with "touch screen"	•	•
Power supply with rechargeable Li-ION battery	•	•
Memory extension by external Compact Flash memory	•	•
Data transfer by USB memory stick drive	•	•
PC interface with USB output	•	•

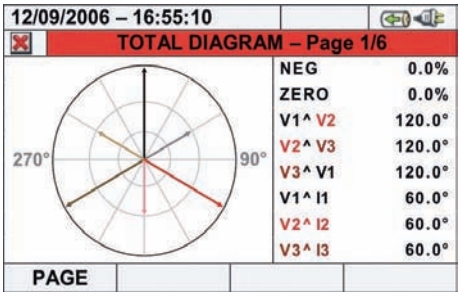
Wide graphic TFT "touch screen" display

GENERAL SPECIFICATIONS	
Display:	TFT, 65536 colors, (320x240pxl) with high contrast, touch screen
Power supply:	1x3.7V Li-ION rechargeable battery with external adapter,life >6h recording auto power off after 5 min stand-by
Internal memory:	15Mbyes (110 days duration @ IP=15min and 251 parameters selected)
Memory extension:	external Compact Flash memory
PC interface	USB 2.0
Safety:	IEC/EN61010-1
Insulation :	double insulation
Measurement category:	CAT IV 600V (to ground) CAT IV 1000V (between inputs)
Mains quality and Flickers:	EN50160
Sequence unbalance :	EN61000-4-7, EN50160
Size (LxWxH):	235x165x75mm
Weight (with battery):	1kg

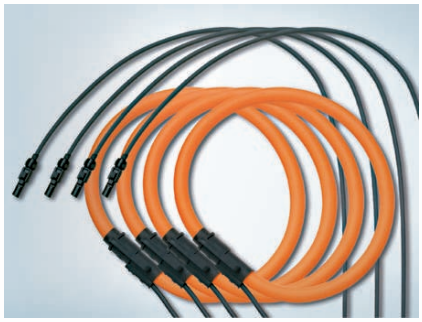
ACCESSORIES	Code
Standard	
- Flexible clamp 3000A, diameter 174mm, 4 pcs	HTFLEX33
- Set of 5 cables + alligator clips	KIT800
- AC/DC 230V 50/60Hz rechargeable adapter	A0055
- Li-ION 3.7V rechargeable battery	
- Pointer for "touch screen"'	PT400
- Windows software + USB cable	TOPVIEW2007
- Carrying bag	BORSA2051N
- ISO9000 calibration certificate	
- User manual on CD-ROM	
- Quick reference guide	
Optional	
- Standard clamp 1-100-1000A/1V, AC diameter 54mm	HT96U
- Standard clamp 10-100-1000A/1V AC, diameter 54mm	HT97U
- Standard clamp 200-2000A/1V AC, diameter 70mm	HP30C2
- Standard clamp 1000A/1V AC/DC, diameter 52mm	HT98U
- Standard clamp 5-100A/1V AC, diameter 20mm	HT4005N
- Case 3x1-5A/1V for connection to CT's	HT903
- AC/DC 110V 50/60Hz rechargeable adapter	A0056
- Compact flash card, 1GB	CF800
- USB compact flash reader	MCR800

General menu function

Interfaces:
- compact flash memory to extended the memory
- USB master to drive USB memory stick for data transfer



Vector diagram



Each model is provided with 4 flexible clamps to measure phase and neutral currents

WITH TOUCH SCREEN

NEW
PQA823
HV000823

NEW
PQA824
HV000824

VEGA76
RECORDER FOR ANALYSING THE ELECTRIC SERVICE QUALITY IN SINGLE AND THREE PHASE PLANTS

Thanks to an innovative development, the instrument **VEGA76** allows carrying out analyses and tests on single-phase and three-phase electric systems with and without neutral. **VEGA76** samples the input signals to a frequency of 6400Hz and displays in real time the values of all fundamental electric quantities which characterize the electric system being tested (voltage, current, active power, reactive power, apparent power, power factor, etc.), showing the waveforms of voltages and currents. The display functions combines with the possibility of recording up to a maximum of 63 quantities and voltage anomalies in the instrument's memory. The instrument is supplied with the PC management software for Windows environment, which further expands the analysis possibilities of the data acquired by the instrument. The instrument also allows displaying and recording the harmonic contents of voltages and currents. **VEGA76** is used for testing and analyzing the quality of the electric service provided by the Electric Power Supplier, for analyzing single-phase and three-phase electric users such as offices and industries, when diagnosing voltage anomalies by taking advantage of the possibility of recording electric quantities. The instrument also allows evaluating the harmonic content introduced by non-linear loads such as computers, TV sets, controlled electric motors, etc. which can cause the RCD's tripping or a neutral overheating.

FUNCTIONS

Recording

Each integration period (selectable between 5s and 3600s) the instrument saves the maximum, minimum and average values of the parameters to be recorded

Voltage anomalies

To analyze voltage anomalies, the instrument tests the input voltages against two threshold values (which can be set between 3% and 30% against the nominal value of the voltage). If the read voltage is higher than the upper limit or lower than the lower limit, the instrument saves:

- Time (with second hundredths) and date when the phenomenon started.
- The duration of the phenomenon.
- The maximum (or minimum) value of voltage during the phenomenon

Harmonic analysis

With the increasing use of complex electronic machines, the analysis of an electric mains cannot leave out an accurate check of harmonics. With VEGA76, it is possible to analyze on the screen and to record the harmonic trend, against the fundamental, both for voltage and for current, as well as to measure the value of the total harmonic distortion (THD). The results of the analyses are shown on the display as curves, bar graphs, frequency percentage and numerical values.

ACCESSORIES	Code
Standard	
- Flexible clamp 3000A, diameter 174mm, 3 pcs	HTFLEX33
- Set of 4 cables + alligator clips	KITENERGY2
- Power supply adapter 230VAC/12VDC 50Hz	A0050
- Windows software + RS-232 cable	TOPVIEW
- Carrying bag	BORSA2051
- ISO9000 calibration certificate	
- User manual	
Optional	
- Standard clamp 1-100-1000A/1V, AC diameter 54mm	HT96U
- Standard clamp 10-100-1000A/1V AC, diameter 54mm	HT97U
- Standard clamp 200-2000A/1V AC, diameter 70mm	HP30C2
- Standard clamp 3000A/1V AC, diameter 70mm	HP30C3
- Case 3x1-5A/1V for connection to CTs	HT903
- Power supply adapter 110VAC/12VDC 60Hz	A0053
- Set of straps for carrying belt	CN0050

HTFLEX33
Three flexible clamps 3000A provided as standard accessories

DC/AC TRMS VOLTAGE (Autorange

Range (V)	Resolution (V)	Accuracy	Input impedance
15 ÷ 310V	0.2V	±(0.5%rdg + 2dgt)	300kΩ (Phase-Neutral)
310V ÷ 600V	0.4V		600kΩ (Phase-Phase)

VOLTAGE ANOMALIES (manual selection of reference voltage and theresholds)

Range (V)	Resolution (V)	Resolution (ms)	Accuracy	Accuracy (@ 50Hz)
15 ÷ 310V	0.2V	10ms	±(0.5%rdg + 2dgt)	±10ms
310V ÷ 600V	0.4V			

AC TRMS CURRENT (by STD and FlexEXT transducer clamps)

Range (*)	Resolution (mV)	Accuracy	Input Impedance	Overload protection
0.005 ÷ 0.26V	0.1	±(0.5%rdg + 2dgt)	100kΩ	5V
0.26 ÷ 1V	0.4			

(*) Minimum detected value: 0,5% of clamp's full scale

AC TRMS CURRENT (by FlexINT transducer clamp): Range 1000A

Current range (*)	Input voltage range	Accuracy	Resolution	Input Impedance
5.00 ÷ 20.00A	425µV ÷ 1.7mV	±(4.0%rdg + 8.5µV)	0.85µV	9.166kΩ
20.00 ÷ 99.99A	1.7mV ÷ 8.499mV	±(1.0%rdg + 8.5µV)		
100.0 ÷ 999.9A	8.5mV ÷ 84.99mV	±(1.0%rdg + 85µV)	8.5µV	

(*) Minimum detected value: 0,5% of clamp's full scale

AC TRMS CURRENT (by FlexINT transducer clamp): Range 3000A

Current range (*)	Input voltage range	Accuracy	Resolution	Input Impedance
15.00 ÷ 99.99A	1.27mV ÷ 8.499mV	±(1.0%rdg + 8.5µV)	0.85µV	9.7kΩ
100.0 ÷ 270.0A	8.5mV ÷ 22.75mV	±(1.0%rdg + 42.5µV)	8.5µV	
270.0 ÷ 999.9A	22.75mV ÷ 84.99mV	±(1.0%rdg + 85µV)	8.5µV	
1.00k ÷ 3.00kA	85mV ÷ 255mV	±(0.5%rdg + 8.5mV)	850µV	

(*) Minimum detected value: 0,5% of clamp's full scale

POWER AND ENERGY MEASUREMENTS (PF: 0.5c – 0.5i)

Type of measure	Range	Resolution	Accuracy
ACTIVE POWER	100 ÷ 999.9W 1kW ÷ 999.9kW 1MW ÷ 999.9MW	0.1W 0.1kW 0.1MW	±(1.0%rdg + 2dgt)
REACTIVE POWER	100 ÷ 999.9VAR 1kVAR ÷ 999.9kVAR 1MVAR ÷ 999.9MVAR	0.1VAR 0.1kVAR 0.1MVAR	
APPARENT POWER	100 ÷ 999.9VA 1kVA ÷ 999.9kVA 1MVA ÷ 999.9MVA	0.1VA 0.1kVA 0.1MVA	
ACTIVE ENERGY (Class2 EN61036)	100 ÷ 999.9W 1kWh ÷ 999.9kWh 1MWh ÷ 999.9MWh	0.1Wh 0.1kWh 0.1MWh	
REACTIVE ENERGY (Class3 IEC1268)	100 ÷ 999.9VARh 1kVARh ÷ 999.9kVARh 1MVARh ÷ 999.9MVARh	0.1VARh 0.1kVARh 0.1MVARh	

POWER FACTOR MEASUREMENT

Range	Resolution	Accuracy (degree)
0.20	0.01	0.6
0.50		0.7
0.80		1

VOLTAGE / CURRENT HARMONIC MEASUREMENT

Range	Resolution	Accuracy
DC - 25H	0.1V/0.1A	±(5%rdg + 2dgt)
26H - 33H		±(10%rdg + 2dgt)
34H - 49H		±(15%rdg + 2dgt)

STANDARDS

• SAFETY STANDARD

Safety	IEC/EN 61010-1
Insulation	class 2
Pollution degree	2
Category of measurement	CAT III 300V~, CAT II 350V~ (Phase-Ground), CAT III 600V (Phase-Phase)
Max altitude:	2000m

• EMC

This product conforms to the prescriptions of the European directive on low voltage 2006/95/EEC (LVD) and to EMC directive 2004/108/EEC

• ELECTRICAL MEASUREMENTS

Active energy static counters for alternative current (Class 2)	IEC/EN61036
Reactive energy static counters for alternative current (Class 3)	IEC1268

MECHANICAL SPECIFICATIONS

Size (LxWxH)	225x165x 105mm
Weight (included batteries)	approx 0.77kg

DISPLAY

Features	Matrix points graphic module with backlight
Resolution	128x128pxl (16384 points)
Point size	0.5mmx0.5mm
Visible area	73mmx73mm

POWER SUPPLY

Internal power supply	6 x1.5V batteries type AA LR06
External power supply	AC/DC supplied adapter
Battery life	approx 24 hours recording

ENVIRONMENTAL CONDITIONS

Reference temperature	23° ± 5C (73°F ÷ 41°F)
Working temperature	0° ÷ 40°C (32°F ÷ 104°F)
Working humidity	<80%RH
Storage temperature	-10 ÷ 60°C (14°F÷ 140°F)
Storage humidity	<80%RH

RECORDING OPERATIONS

- RECORDED PARAMETERS:

Phase-Neutral and Phase-Phase voltages
Phase currents
Active, reactive and apparent powers
Active energy (Class 2 IEC/EN61036), Reactive energy (Class3 IEC1268)
Power factors
Harmonics
Voltage anomalies (sags and swells)

Max number of selected parameters:	64
Integration period (IP)	5 ÷ 3600s
Recording duration	40days (@ IP =15min)
Memory size:	2Mbytes

XL421 - XL422
DATA LOGGERS FOR SINGLE-PHASE AND THREE-PHASE TRMS CURRENT

Models **XL421** and **XL422** are innovative portable Data Loggers, capable of measuring AC current in real efficient (TRMS) value up to 2,500A in single-phase and three-phase electric systems respectively. This type of instrument is very useful especially in the industrial sector (evaluations of electric load consumption, verification of nominal power of transformers, etc.) and is extremely versatile due to its small size, thanks to which it is easily installed also as panel unit. The current Data Loggers **XL421** and **XL422** are enclosed in a practical and safe plastic case, with a high mechanical protection index IP65 (protected both against dust and water sprays); they are, therefore, suitable for use in common industrial environments. These models are provided with in-built flexible clamps which allow carrying out current measurements also on cables and/or big bars. Thanks to a sophisticated internal memory algorithm, continuous recordings are possible also for prolonged time intervals and, therefore, it is possible to accurately monitor electric mains. Further to internal programming, the software for Windows provided allows downloading and analyzing on the PC the results of the recordings, in order to produce useful print reports on measurements. Clear LED indications on the front panel allow a simple use, also by non-expert users.

FUNCTIONS	XL421	XL422
TRMS current measurement	Single phase	Three phase
Measurement range	1 ÷ 2500A AC	
Accuracy	±(1.0%rdg+1dgt)	
Resolution	1A	
Frequency range	50±6Hz, 60±6Hz	
Bandwidth	3200Hz	
Sample rate	64 points in 20ms	
Integration period	1s, 6s, 30s, 60s, 5min	
Memory size	1Mbyte	
PC serial interface	RS-232	
Integration period	Recording duration (days)	
1s	5	1,5
6s	34	8
30s	170	42
60s	364*(*)*	91
5min	1820*(*)*	455*(*)*

(*) Depending on batteries life

GENERAL SPECIFICATIONS	
Front panel indication	LED
Power supply	2x1.5V batteries type AA LR6
Life batteries	>6months (fully charge batteries)
Safety	IEC/EN61010-1
Category of measurement	CAT IV 600V (to ground)
Insulation	double insulation
Pollution degree	2
Mechanical protection index	IP65
Max altitude	2000m
Max diameter of flexible clamps	174mm
Size (LxWxH)	120x80x43mm
Weight (included batteries)	0.5kg

ACCESSORIES	Code
Standard	
- Integrated flexible clamp 3000A *(1 pcs for XL421, 3 pcs for XL422)*	HTFLEX33DL
- Adesive velcro 50x70mm	VELCRO
- PC Windows software	DATALINK
- RS-232 serial cable	C2004
- Carrying bag	BORSA2000
- Batteries	
- User manual	

XL421
HV000421

XL422
HV000422

XL423 - XL424
DATA LOGGERS FOR SINGLE-PHASE AND THREE-PHASE TRMS VOLTAGE

Models **XL423** and **XL424** are innovative portable Data Loggers, capable of measuring AC voltage in real efficient (TRMS) value up to 600V in single-phase and three-phase electric systems respectively. This type of instrument is very useful especially in the industrial sector (mains voltage measurement, unbalanced loads, etc.) and is extremely versatile due to its small size, thanks to which it is easily installed also as panel unit. The voltage Data Loggers **XL423** and **XL424** are enclosed in a practical and safe plastic suitcase, with a high mechanical protection index IP65 (protected both against dust and water sprays); they are, therefore, perfectly suitable for use in common industrial environments. These models are provided with appropriate cables with alligator clips, which enable safely carrying out voltage measurements. Thanks to a sophisticated internal memory algorithm, continuous recordings are possible also for prolonged time intervals and, therefore, it is possible to accurately monitor electric mains. Further to internal programming, the software for Windows provided allows downloading and analyzing on the PC the results of the recordings, in order to produce useful print reports on measurements. Clear LED indications on the front panel allow a simple use, also by non-expert users.

FUNCTIONS	XL423	XL424
TRMS current measurement	Single phase	Three phase
Measurement range	0 ÷ 600V AC	
Accuracy	±(1.0%rdg+1dgt)	
Resolution	0.1V	
Frequency range	50±6Hz, 60±6Hz	
Bandwidth	3200Hz	
Sample rate	64 points in 20ms	
Integration period	1s, 6s, 30s, 60s, 5min	
Memory size	1Mbyte	
PC serial interface	RS-232	
Integration period	Recording duration (days)	
1s	5	1,5
6s	34	8
30s	170	42
60s	364*(*)*	91
5min	1820*(*)*	455*(*)*

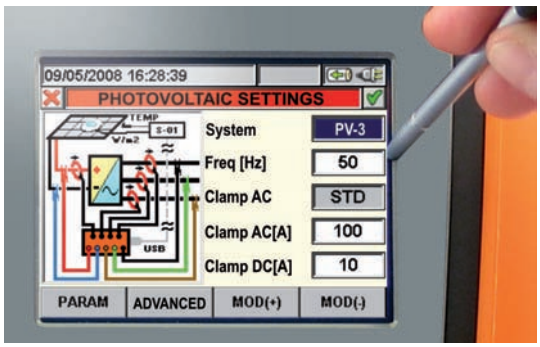
(*) Depending on batteries life

GENERAL SPECIFICATIONS	
Front panel indication	LED diode
Power supply	2x1.5V batteries type AA LR6
Life batteries	>6months (fully charge batteries)
Safety	IEC/EN61010-1
Category of measurement	CAT IV 600V (to ground)
Insulation	double insulation
Pollution degree	2
Mechanical protection index	IP65
Max altitude	2000m
Max diameter of flexible clamps	174mm
Size (LxWxH)	120x80x43mm
Weight (included batteries)	0.5kg

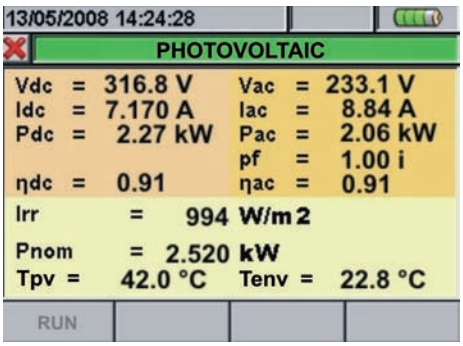
ACCESSORIES	Code
Standard	
- Set of 2 test leads with alligator clips *(only XL423)*	KITXL423C
- Set of 4 test leads with alligator clips *(only XL424)*	KITXL424C
- Adesive velcro 50x70mm	VELCRO
- PC Windows software	DATALINK
- RS-232 serial cable	C2004
- Carrying bag	BORSA2000
- Batteries	
- User manual	

SOLAR300
MULTIFUNCTIONAL METER FOR SINGLE AND THREE PHASE PHOTOVOLTAIC INSTALLATIONS CERTIFY

SOLAR300 carries out all the recommended tests to check the performances of single and three phase photovoltaic installations. The meter measures output DC power of the cells, output AC power of the inverter, solar radiation and temperature of the cells. Measurement of AC and DC power requires the user to connect the instrument's inputs upstream (DC) and downstream the inverter. The values in single-phase installations or in three-phase installations, are acquired simultaneously. Usually the inverter and the photovoltaic cells could be far each other so to skip the use of long cables, SOLAR300 uses a remote measuring device, SOLAR-01, that acquires the following parameters: solar radiation, temperature of the cells and environmental temperature. At the end of the recording, the values acquired by SOLAR-01 are transferred to the SOLAR300 through an USB connection. SOLAR300 also permits recording of each parameters, the voltage/current harmonic analysis and the voltage anomalies (sags, swells) detection. Thanks to its built-in memory and its compact flash driver a considerable volume of data can be stored for further analysis.
The innovative touch screen system of SOLAR300 makes the data analysis extremely easy. In addition, the management software Topview allows the user to create professional reports displaying the company trade mark, the user's data, the recording comments, etc

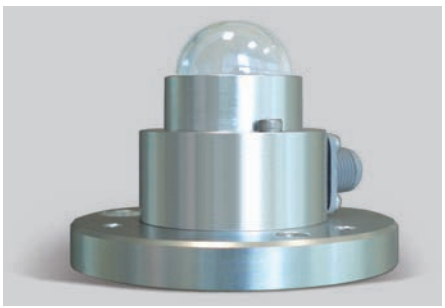


Graphic TFT "touch screen" for easy parameter selection



Final screen of a photovoltaic test performed by SOLAR300

Remote unit SOLAR-01



Thermopile pyranometer

Professional carrying case

FUNCTIONS

- DC/AC TRMS voltages on single and three phase plants
- DC/AC TRMS currents on single and three phase plants
- DC/AC powers on single and three phase plants
- AC energies on single and three phase plants
- Power factor on single and three phase plants
- Solar radiation measurements [W/m^2]
- Temperature of the cells and environmental (°C)
- Voltage and current harmonics (up to the 49th order)
- Recording analysis (voltage, current, energies, etc)
- Voltage anomalies (dips and swells) with 10ms resolution
- Numeric and graphics available screens
- Recall result at display
- Colour back-lighted graphical TFT display with “touch screen”
- Li-ION rechargeable battery
- Internal memory 15MB
- USB Memory stick and Compact Flash drivers
- USB output for PC connection
- Help on line at display

NEW

SOLAR300
HV000300-0201

GENERAL SPECIFICATIONS

Diisplay:	TFT, 65536 colours, (320x240pxl), high brightness, touch screen
Power supply:	1x3.7V Li-ION rechargeable battery wit external adapter , life >6h recording, autopoweroff after 5min of idleness
Internal memory:	15Mbytes (110 days @ IP = 15min 251 selected parameters)
Expanded memory:	External compact Flash
PC interface:	USB 2.0
Safety:	IEC/EN61010-1
Insulation:	double insulation
Category of measure:	CAT IV 600V (to ground) CAT IV 1000V (between inputs)
Unbalanced standard:	IEC/EN61000-4-7
Size (LxWxH):	235x165x75mm
Weight (with battery):	1kg

ACCESSORIES	Code
Standard	
- Remote unit for temperature and solar radiation measurements	SOLAR-01
- Set of cables for voltage measurements	KIT800
- AC 5-100A/1V clamp meter, 20cm diameter, 3 pcs	3x HT4005N
- DC/AC 10-100A/1V clamp meter, 30cm diameter	HT4004
- Pyranometer provided with calibration certificate	
- Pt1000 probe to measure temperature	PT300N
- Touch screen pen	PT400
- Li-ION rechargeable battery	
- AC/DC power supply adapter	A0055
- PC Windows software + USB cable	TOPVIEW2007
- Carrying case	VA300
- ISO9000 calibration certificate	
- User manual on CD-ROM	
- Quick reference guide	
Optional	
- AC 1-100-1000A/1V clamp, 54mm diameter	HT96U
- AC 10-100-1000A/1V clamp, 54mm diameter	HT97U
- DC/AC 1000A/1V clamp, 50mm diameter	HT98U
- AC 200-2000A/1V clamp, 70mm diameter	HP30C2
- AC 3000A flexible clamp, 174mm diameter (*)	HTFLEX33
- Case 3x1-5A/1V for connection to external CTs	HT903
(*) Only for use of meter as network analyzer	

SOLAR200
MULTIFUNCTIONAL METER FOR SAFETY TEST ON SINGLE AND THREE PHASE PHOTOVOLTAIC SYSTEMS

SOLAR200 is an innovative meter designed to perform all safety tests on each type of photovoltaic system in compliance with safety standards (VDE0100, BS7671, IEC/EN61447-1...). This meter is very easy to use and has a large number of features, which can be selected from the multilanguage menu. It also allows starting the main measurements by using a special remote probe (optional accessory PR400), especially useful to perform tests very quickly. A contextual help menu, selectable by the user, is available for each measuring function, and gives a valid information during the connection of the meter to the system. The newest electronic function selector gives the meter an extremely rugged structure for perfect using "on field". A wide internal memory allows saving measurement results and transferring them onto the PC by means of the serial port with a dedicated software. Each measure is saved with all sub-results and test parameters with up to two ID locators (selectable by the user on the meter) in order to reach the exact point where measure was performed.

FUNCTIONS

- Continuity of earth conductors with 200mA
- Insulation with 50, 100, 250, 500, 1000VDC
- Trip-out time of RCD type A, AC Standard and Selective with nominal current up to 500mA
- Trip-out current of RCD type A, AC Standard and Selective with nominal current up to 500mA
- Loop/Line impedance P-N, P-P, P-PE also with high resolution (0,1mΩ) (with IMP57 optional accessory)
- Global earth resistance without RCDs tripping
- Contact voltage
- Phase sequence indication
- Quick test activation with optional accessory PR400
- Contextual help at display
- Internal memory for saving measurement results
- Optical / USB interface for connection to PC

GENERAL SPECIFICATIONS

Display:	LCD custom with backlight
Power supply:	6x1.5V alkaline batteries type AA IEC LR06
Internal memory:	500 locations
PC interface:	optical optoinsulated connector
Safety:	IEC/EN61010-1
Insulation:	double insulation
Pollution degree:	2
Category of measure:	CAT III 240V (to ground) CAT III 415V (between inputs)
Reference standard:	IEC/EN61557-1
Size (LxWxH):	235x165x75mm
Weight (with batteries):	1.25kg

ACCESSORIES	Code
Standard	
- 3-terminal cable with SHUKO plug	C2033X
- Set of 3 cables + 3 alligator clips + 1 test leads	UNIVERSALKIT
- Carrying case	BORSA75
- User manual	
- ISO9000 calibration certificate	
Optional	
- Windows software + optical/USB cable	TOPVIEW2006
- Remote probe	PR400
- Accessory for Loop impedance with high resolution	IMP57
- Set of straps for carrying belt	SP-0400

IMP57
Accessory for measuring Loop Impedance with high resolution

PR400
Optional remote probe

DEMOBOARD
MULTIFUNCTIONAL DEMOBOARD CASE

The **DEMOBOARD** case was designed for use as an accessory together with measuring instruments, in order to learn their features, and is designed for didactical/promotion purposes. This model consists in three different sections (SAFETY, ANALYZER and LAN) to simulate a low voltage electrical system (type TT or TN) and a LAN generic network, which allows performing a very large number of demonstrations on test meters, network analyzers and RJ45 LAN wire mapping meters. Practical switches to enable/disable the OK/NO error conditions on measurements are included in the accessory.
The structure is fitted in a strong plastic case protecting it from dust, water and shocks (IP67 degree with closed case), which allows a full "use on field" in each kind of situation and environment.

FUNCTIONS

- Test on TT systems (continuity of earth conductors, insulation, RCD test, global earth test without RCD tripping, earth resistance with 3-wire method, direct and indirect leakage current)
- Test on TN systems (line/loop impedance, prospective short circuit current)
- Network analysis on single and three phase systems (measurement of each electrical parameter)
- Voltage and current harmonic analysis (generated and absorbed harmonics)
- Wire mapping on LAN cables (STP cables with RJ45 connectors, OPEN, SHORT, REV, CROSS and SPLIT pairs error conditions)
- Up to 18 selectable error conditions plus their combinations
- 4mm safety banana input connectors
- 8 switches to simulate error conditions
- Fuse protection on power supply
- P-N and P-PE detection conditions on power supply
- Internal check of high temperature with red light
- Shuko europlug test sockets
- Test RCD adjustable in time and current
- Magnetothermic protection device C10 type
- Shielded current cables with safety protection

GENERAL SPECIFICATIONS

Power supply:	230V AC/ 50Hz
Nominal absorption:	60VA
Protection fuse:	type T250V/3.15A
PE conductor detection:	green light indicators
Test RCD:	adjustable type A, AC standard,
Megnothermic switch:	type C10, 230V/10A
Test sockets:	type F30, 250V/16A
LAN connectors:	RJ45 compliance with TIA568B
Safety:	IEC/EN61010-1
Mechanical protection:	IP67 (close case)
Max altitude:	2000m
Size (LxWxH):	474x415x214mm
Weight:	10.2kg

STANDARD ACCESSORIES

- Supply cord with Shuko plug
- Shielded current cables, 4 pcs
- User manual

HT5600 - HT5650 - HT5700
INSTRUMENTS FOR CERTIFYING LAN NETWORKS UP TO CAT7A

HT ITALIA presents new professional family of meters designed to perform any verify test and certification of LAN networks in copper cables or optical fibers in CAT6 up to 350Mhz (**HT5600** model), CAT6A up to 500MHz (**HT5650** model) and the recently CAT7A up to 1GHz (**HT5700B** or **HT5700P** models). Those models, the most advanced of their category, using a innovative and patented channel adaptor system fit into the case of each unit and locked in place. This creates a stable and repeatable testing platform while eliminating bulky adapters that extend beyond the end of the unit. In the same time the Channel or Permanent link certification is always possible simply changing the standard patch cords without any other added adaptor to reach the lowest cost of ownership. AUTOTEST feature permits to automatically performing (in 21 second only!) each test depending on kind of cable which can be selected from the operator and the results are shown as in global mode (Pass or Fail test) or detailed mode with all measured values and graphics ones according to selected standard reference. The built-in TDR (Time Domain Reflectometer) feature performing a rapid and powerful diagnostic troubleshooting on test cables giving the kind of trouble more than the location of it's on cable. The advanced technology of this models permits also the DUALMode operation which permits to simultaneously conducting a combination of two test, for example in CAT5E and CAT6 on the same cable, with the same amount of time as a single test, so saving time and money

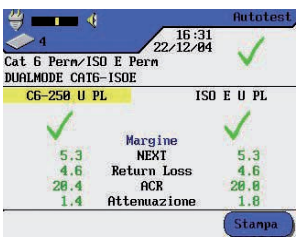
HT5650
HV005650

HT5600
HV005600

HT5700B
HV05700B

HT5700P
HV05700P

Innovative channel link adapter
Compact flash memory to extended the internal memory



DUAL MODE feature for simultaneous test on different type of cables (e.g: CAT5E and CAT& cables)

FUNCTIONS	HT5600	HT5650	HT5700
Frequency range	350MHz	500MHz	1GHz
CAT3/5E/6 & ISOC/D/E support	•	•	•
CAT6/6A & ISOF support	upgrade	•	•
CAT7/7A & ISOF support	upgrade	upgrade	•
IEEE 802.3 Ethernet standard	upgrade	•	•
TIA/EIA 568B, EN50173-1, ISO11801 standards	•	•	•
Test on UTP/FTP/STP/ScTP cables with RJ45 connector	•	•	•
Test on IBM/USOC coax cables	•	•	•
Test on Single Mode optical fiber (1310/1550nm)	•	•	•
Test on Multi Mode optical fiber (850/1300nm)	•	•	•
Channel and Permanent link test	•	•	•
AUTOTEST time test on CAT5E	15s	15s	15s
AUTOTEST time test on CAT6	21s	21s	21s
DUAL MODE test	•	•	•
TDR feature for diagnostic test	•	•	•
TALK feature for headphone communication	•	•	•
Internal memory capacity for CAT5E/6 test without graphs	600 tests	6000 tests	6000 tests
Internal memory capacity for CAT5E/6 test with graphs	6000 tests	6000 tests	6000 tests
Expand of internal memory (Compact Flash)	•	•	•
Memory capacity for CAT6 test without graph with of 64MBCompact Flash	48000	48000	48000
RS-232 and USB ports	•	•	•
Rechargeable NiMH battery and external supplied AC/DC 230V/12VDC adapter	•	•	•
Life battery	•	•	•
Display unit VGA type (320x240pxl)	•	•	•
Remote unit with LCD and 2 lines of dgts	•	•	•
Backlight (display unit)	•	•	•
Icons internal menus	•	•	•
Size of each unit (LxWxH) mm	256x127x58	256x127x58	256x127x58
Weight of each unit (with batteries)	1.5kg	1.5kg	1.5kg

Standards

ANSI/TIA/EIA 568B
CAT3/5/5E/6/6A/7
ISO11801 C/D/E/F
EN50173-1
IEEE802.3
Levels III / IV

Possible upgrading of units to higher categoriess

STANDARD ACCESSORIES	HT5600	HT5650	HT5700B	HT5700P
- Display unit	•	•	•	•
- Remote unit	•	•	•	•
- 2 channel adapters	CAT6	CAT6A	CAT6A	CAT6A
- 2 STP patch cables	CAT6	CAT6A	CAT6A	CAT6A
- NiMH rechargeable battery	2	2	2	4
- 2 adapters 230V, 50/60Hz	•	•	•	•
- 1 RS-232 serial cable	•	•	•	•
- 1 USB cable	•	•	•	•
- 1 compact flash card 64MB	optional	optional	optional	•
- 1 compact flash card reader	optional	optional	optional	•
- 2 straps for carrying on belt	•	•	•	•
- 2 headphone set	•	•	•	•
- 1 table battery charger	optional	optional	optional	•
- 1 Deluxe hard case	optional	optional	optional	•
- 1 soft carrying case	•	•	•	optional
- 1 Windows software	•	•	•	•
- 1 calibration certificate	•	•	•	•
- 1 User's manual on CD-ROM	•	•	•	•
- 1 Quick reference guide	•	•	•	•

OPTIONAL ACCESSORIES	Code
- compact flash card 64MB	2112-27-0605
- compact flash card reader	MCR800
- table battery charger	0012-00-0642
- Deluxe hard case	3010-12-0092
- soft carrying case	3010-12-0096
- set of 2 NiMH rechargeable batteries	1219-00-1604
- adapter 230V, 50/60Hz	1019-00-1517
- RS-232 serial cable	6011-50-0031

OPTIONAL ACCESSORIES FOR OPTICAL FIBRES

FIBERTEK ACCESSORIES

Attenuation / Length measurement – FIBERTEK accessories permit to test at the same time the attenuation and the length of two optical fibres. The operators can communicate through the optical fibres under test by the headphone set. FIBERTEK accessories are available both for Multi Mode fibres (850nm and 1300nm) and Single Mode fibres (1310 and 1550nm).

TRACETEK ACCESSORIES

Trace of problems on fibres – TRACETEK is an innovative accessory with the same features of an OTDR but very less expensive. It is the first accessory which permits at a standard LAN tester to perform trouble shooting test, thanks to the reflection of the signal at the point of fibre where the problem occours.

Accessory description

- Adapters 850nm and 1300nm with ST connectors, patch cables ST-ST 50m and 62.6m, ST-ST couplers, hard case, kit for cleaning fibres, user's manual
Code: FIBERTEKMMB (Multi Mode fibre)

- Adapters 1310nm and 1550nm with FC connectors, patch cables ST-ST and FC-ST 9m, ST-ST couplers, hard case, kit for cleaning fibres, user's manual
Code: FIBERTEKSMB (Single Mode fibre)

- TRACETEK unit 1300nm with FC-ST patch cables, hard case, kit for cleaning fibres, user's manual
Code: TRACETEKMM (Multi Mode fibre)

- TRACETEK unit 1310nm with FC-fc patch cables, hard case, kit for cleaning fibres, user's manual
Code: TRACETEKSM (Single Mode fibre)

SIGNALTEK™
CABLE QUALIFIER METER FOR EVERYDAY NETWORK PERFORMANCE TESTING

HT ITALIA presents new **SIGNALTEK** cable performance verifier which can be used by datacomm installers, electrical contractors and the IT/network manager as a cost-effective means of verifying the bandwidth of installed data cabling. SIGNALTEK is a reliable, feature-rich, handheld cable tester with PDA-like navigation control. It offers the capability to speed test actual data transmission rates of up to 1 Gigabit (per IEEE 802.3ab). In addition, SIGNALTEK's integrated time domain reflectometer (TDR) can be used to locate faults on Category 3, 5, 5e and 6 cable as well as coax, telephone, security alarm and audio lines.
To verify bandwidth, SIGNALTEK establishes a 10/100/1000 Mbps link using twin Gigabit transceivers and transmits data packets across cable links to perform a full packet loss test. This simple 'pass/fail' test determines within seconds whether or not the cable link can support applications such as voice, VoIP, Ethernet or Gigabit Ethernet. In addition to a quick performance test, SIGNALTEK users can also specify long duration tests to monitor link performance over several hours to isolate network problems that may not be directly related to the quality of the network cabling. TDR feature can be used to show cable lengths and distances to shorts, split pairs and opens. It can also inform technicians what device is at the end of a cable run, such as its own remote handset, a live network device or an open link. SIGNALTEK's intelligent autotest function then performs the correct test suite given the cables current termination configuration.
Thousands of test results can be stored on SIGNALTEK's internal memory. When transferred via a USB to a PC, the results can be analysed and customised to any format desired. Reports can be printed for a client's end-of-job documentation.

GENERAL SPECIFICATIONS

- Tests on 10/100/1000Mbps LAN networks
- VoIP, GigaBit Ethernet protocols supported
- Tests on UTP/STP copper cable with RJ45 plug
- Test on video/voice/phone cables with RJ11/RJ12 plugs
- Test on coax cables 58-59/6 series
- Complete test on IEEE 802.3ab in 15s
- Duration test for find problem and troubleshooting
- Support of static and dynamic IP address
- Performing test with OK/FAIL indications
- Very user-friendly interface
- Complete wire mapping test on cables
- Length cable measurement up to 140m
- Performing AUTOTEST measurements
- TDR integrated feature
- Internal memory for saving test
- USB ports per PC and printer connection
- VGA 2.8" colour LCD display
- Power supply: 8x1.5V alkaline batteries type AA LR6
- External power supply with adapter
- Size (LxWxH):
  197x90x37mm (display unit)
  170x87x37mm (remote unit)
- Weight (with batteries): 350g

ACCESSORIES	Code
Standard	
- SIGNALTEK display and remote unit	
- 2 patch cables RJ45 →RJ45, STP, CAT5E, 30cm	
- 2 RJ45 → coax cables, "F", 60cm	
- 2 patch cables RJ45 → alligator clip, 30cm	
- 2 adapters coax cables "F" connection	
- USB cable	
- 8x1.5 alkaline batteries type AA LR6	
- 2 adapters 120/240V with different plugs *(only model 33-975)*	
- Carrying case	
- Set of straps for carrying belt	
Optional	
- Set complete of SIGNALTEK cables	1219-91-0003
- Patch cable RJ45 BNC	6011-50-0077
- Adapter 120/240V	4010-00-0136
- Patch cable RJ45 8 alligator clips	K-7920

Standard accessories for SIGNALTEK

QUICKLAN6050 - QUICKLAN6055
PORTABLE INSTRUMENTS FOR VERIFYING LAN NETWORK CABLES

The portable instruments **QUICKLAN6050** and **QUICKLAN6055** are capable of detecting and indicating on the display the presence of wrong connections on LAN cables (crossed, split, inverted, open, short-circuited pairs, etc.) both of UTP type (non-shielded) and of STP or FTP type (shielded). Model **HT6050** also allows measuring the cable length and saving the test results in its internal memory. Each model comes with different remote units available, and is capable of interfacing itself with other (optional) units, in order to set up an efficient localization system of different points in a patch panel, by carrying out the tests very rapidly and with the aid of one operator only. **HT6050** and **HT6055** are the ideal instrument for all installers requiring simple and efficient instruments for carrying out preliminary checks and verifications on LAN installations with connectors of RJ45 type.

FUNCTIONS	HT6050	HT6055
Wiring cable mapping of LAN	•	•
Verification on RJ45 cables with twisted pairs of UTP, STP and FTP type	•	•
Verification on COAX cables	•	
Open pair errors	•	•
Short-circuited pair errors	•	•
Crossed pair errors	•	•
Inverted pair errors	•	•
Split pair errors	•	•
Generic errors (MISWIRE)		•
Display indication of error type	•	•
Indication of test passed/failed	•	•
Remote unit detection	•(4)	•(8)
Measurement of cable length	•	
Cable length measuring range	1 ÷ 350m	
Internal memory for test result saving	•	
Memory locations	99	
Recall and deletion of saved data	•	
AutoPowerOFF	•	•
Low battery indication	•	•

GENERAL SPECIFICATIONS	HT6050	HT6055
Input connectors	RJ45, BNC	RJ45
Protection against voltage	(50V)	(30V)
Power supply (alkaline batteries)	6 x1.5V type AAA	1 x9V type 6F22
Size (LxWxH) mm	150x72x35	128x67x39
Weight (with batteries)	215g	165g

ACCESSORIES	Code
Standard	
- Remote unit #1 *(only HT6050)*	
- Remote unit #1 and #2 *(only HT6055)*	REM1, REM2
- 2 patch cables FTP RJ45-RJ45, 20cm *(only HT6050)*	
- 3 patch cables FTP RJ45-RJ45, 20cm *(only HT6055)*	
- Carrying bag	
- User manual	
- Batteries	
Optional	
- Set of remote units #2, #3, #4 (only HT6050)	6050MARKER0204
- Unit remote #3 + patch cable *(only HT6055)*	REM3
- Unit remote #4 + patch cable *(only HT6055)*	REM4
- Unit remote #5 + patch cable *(only HT6055)*	REM5
- Unit remote #6 + patch cable *(only HT6055)*	REM6
- Unit remote #7 + patch cable *(only HT6055)*	REM7
- Unit remote #8 + patch cable *(only HT6055)*	REM8
- Set of remote units from #2 to #8 + patch cables *(only HT6055)*	REM38

HT-5000
PROFESSIONAL SYSTEM FOR FINDING GROUNDING CABLES AND PIPES

Civil engineering work is accelerated, earth-moving machines are used efficiently and the risk of accidents is minimised thanks to the **HT-5000** meter. This unit is especially designed to know the position and the depth of underground pipes and cables or cabling plans in a very quick and easy way. The model is composed by a Transmitter and a Receiver and the principle used is the propagation of a electromagnetic field inside a object crossed by a signal generated with a direct coupling (finding energized or not energized objects with accessible parts) and inductive coupling (signal spread by transmitter by integrated antenna) for finding of not accessible parts (e.g: earth-moving areas). The tracing can be performed also in passive mode by the use of receiver only in order to locate cable or pipes crossed by 50/60Hz electrical current or radiofrequency signals. Both transmitter and receiver are designed with IP56 (protection by dust and water) for typical external "in field" environment and a wide number of optional accessories are available also for finding of non metal objects.

FUNCTIONS

TX5000 Transmitter

- Inductive coupling with 33kHz signal by integrated antenna
- Direct coupling with 33kHz by external accessories
- Selectable transmitted power of signal
- Blinking or continuous signals
- Level battery indication

RX5000 Receiver

- Passive mode without transmitter
- Active mode with transmitter
- Automatic measurement of depth
- Manual/Automatic sensitivity selection
- Display backlight
- Speaker with volume control
- Headphone jack for use in loud environment
- Floor cap for housing protection

GENERAL SPECIFICATIONS

TX5000 Transmitter	
Transmitted power:	0.1W / 0.5W
Frequency of signal:	33kHz
Power supply	6x1.5V batteries type IEC LR20
Operating time:	approx 40 hours (@ 20°C)
Sizes (LxWxH):	260 x 140 x 255mm
Weight (included batteries):	1.7kg
Mechanical protection:	IP56 (dust and water)
RX5000 Receiver	
Frequency range:	15kHz ÷ 23kHz (radiofrequency) 50 / 60Hz (electrical network)
Frequency with transmitter:	33kHz
Depth range:	03m ÷ 7m
Power supply:	10x1.5V batteries type AA IECLR6
Operating time:	approx 40 hours (@ 20°C)
Size (LxWxH):	660 x 252 x 99mm
Weight (included batteries):	2.5kg
Mechanical protection:	IP56 (dust and water)

ACCESSORIES

Standard

- Transmitter TX5000
- Receiver RX5000
- Set of measurement cables with alligator clips
- Metal probes for earth reference
- Batteries for transmitter and receiver
- Carrying bag
- User manual

Optional

- Clamp, 100mm diameter for inductive coupling
- Set for connection to TV or phone cabling
- Flexible probe for location of non metal object
- Battery transmitter for location of non metal object
- Nylon bag for receiver

Use of meter for tracing of metallic conductors/pipes on a site planned for construction (e.g. excavation work)

DM50
PROFESSIONAL DIGITAL LASER METER

The model **DM50** is designed to measure distances between two points in a simple, fast and efficient way thanks to the integrated laser pointer and small size which make it a completely portable tool for use in every situation and in any application (buildings, electricity sector , hobbies, etc...) where it may be necessary to perform a measure of linear length. The tool also allows to perform calculations of areas and volumes and the indirect measure of heights by using the principle of mathematical theorem of Pythagoras. A practical side button enables the activation of measures quickly with the help of a small bubble level air for a perfect alignment of objects in the test. The management of simple operations with the internal memory (sums and subtractions) and a backlight display complete the features available for the instrument.

FUNCTIONS

- Direct measurement of distance from 20cm to 50m
- Resolution of measurement: 0.001m
- Ergo-eXpress method for quickly measurements
- Areas and Volumes calculation
- Heights measure with indirect Pythagoras method
- Continuous (dynamic) measurements
- Laser pointer activation on measurements
- Setting of measurement reference
- Selection of m or ft measurement units
- Management operation with internal memory
- Hole for use of tripod
- High contrast backlight display
- Buzzer activation on keys
- AutoPowerOFF
- Hand strap

GENERAL SPECIFICATIONS

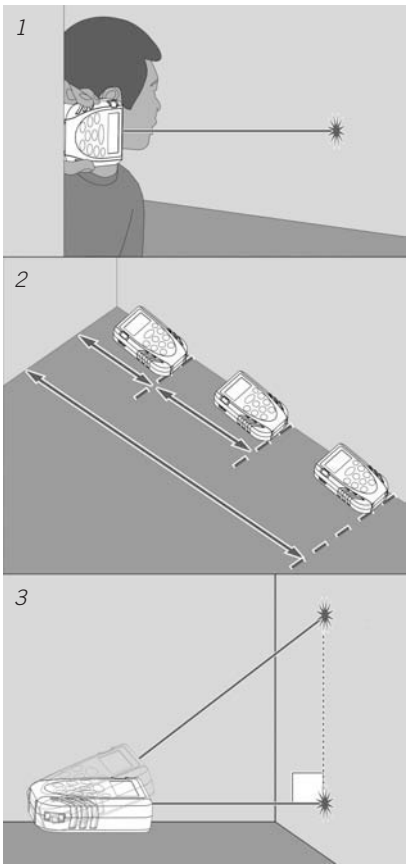
Display:	double LCD, 5 dgt with backlight
Power supply:	1x9V alkaline battery type IEC 6F22
Battery life:	up to 5000 measurements
Laser pointer:	650nm, Class II, <1mW
Response time:	0.5s
Working temperature:	0°C ÷ 40°C
AutoPowerOFF:	30s (laser), 180s (instrument)
Reference standards:	EMC, FCC part 15, IEC/EN60825-1
Size (LxWxH):	105x61x32mm
Weight (included battery):	approx 140g

STANDARD ACCESSORIES

- Soft carrying bag
- Hand strap
- Battery
- User manual

NEW

DM50
HA000500



(1) Quickly Ergo-eXpress measurement
(2) Dynamic measurement with reference
(3) Indirect height measurement with Pythagoras method

DIGITAL MULTIMETERS

FEATURES	HT321	HT322	HT326	HT327	HT570
	NEW	NEW	NEW	NEW	
TRMS				•	
LCD Resolution (points)	2000	2000	4000	4000	3400
DC Voltage	•	•	•	•	•
AC Voltage	•	•	•	•	•
AC Voltage with 1 wire					
DC Current			•	•	•
AC Current			•	•	•
Resistance	•	•	•	•	•
Frequency			•	•	
Frequency with 1 wire					
Capacitance			•	•	
Continuity test with buzzer	•	•	•	•	•
Diode test	•	•	•	•	•
Duty cycle (%)			•		
Temperature with type K probe		•			
Total Harmonic Distortion (THD%)					
Readings in % of 0/4-20 mA					
Phase sequence indication					
Phase sequence indication with 1wire					
Phase conformity with 1 wire					
Oveload protection	600V	600V	600V	600V	600V
Category of measurement	CAT IV 600V	CAT IV 600V	CAT IV 600V	CAT IV 600V	CAT III 600V
Bargraph				•	•
Backlight		•	•	•	
Autorange					•
AutoPowerOFF	•	•	•	•	•
Data HOLD	•	•	•	•	•
MIN/MAX	•(only MAX)	•(only MAX)		•	
AVG (Average)					
PEAK				•	
AC/DC signal automatic detection					
Relative measurement			•	•	
Real-time recording					
RS-232 interface					
Sizes (LxWxH) mm	163x88x48	163x88x48	163x88x48	163x88x48	167x77x36
Weight	280g	280g	280g	400g	300g
PAGE	44	44	45	45	46

HT576	HT579	HT32	HT37	HT39	HT710	HT712	HT21
	•	•	•	•		•	
4000	10000	6000	4000	4000	4000	4000	2000
•	•	•	•	•	•	•	•
•	•	•	•	•	•	•	•
						•	
•	•	•	•	•			
•	•	•	•	•			
•	•	•	•	•	•	•	•
	•	•	•	•	•	•	
						•	
	•	•	•	•			
•	•	•	•	•	•	•	•
•	•	•	•	•	•		•
	•						
	•						
	•						
						•	
						•	
						•	
1000V	1000V	1000V	1000V	1000V	600V	600V	600V
CAT III 600V CAT II 1000V	CAT III 600V CAT II 1000V	CAT III 1000V CAT IV 600V	CAT III 1000V CAT IV 600V	CAT III 1000V CAT IV 600V	CAT IV 600V	CAT IV 600V	CAT III 600V
•	•	•	•	•			
				•			
•	•	•	•	•	•	•	
•	•	•	•	•	•	•	•
•	•	•	•	•	•	•	•
	•	•	•	•			
	•						
			•	•			
						•	
	•		•	•	•		
	•			•			
•	•			•			
178x83x58	178x83x58	168x82x44	168x82x44	168x82x44	250x51x30	250x51x30	144x70x40
400g	400g	400g	400g	400g	150g	150g	280g
47	47	48	49	48	49	49	51

HT321 - HT322
CAT IV DIGITAL MULTIMETER 3½ DGT

The **HT321** and **HT322** digital compact multimeters with 3½ dgt LCD display are designed in CAT IV 600V to perform AC/DC voltage, resistance, continuity test and diode test measurements. The HT322 model also performs temperature measurement with type K probes. Other features of the models are data HOLD, MAX, manual range and backlight *(only HT322)*.

FUNCTIONS	HT321	HT322
AC Voltage	•	•
DC Voltage	•	•
Resistance	•	•
Continuity test	•	•
Diode test	•	•
Temperature with type K probe		•
Data HOLD	•	•
MAX	•	•
Manual range	•	•
Backlight		•
AutoPowerOFF	•	•

GENERAL SPECIFICATIONS	
Display:	LCD, 3½ dgt, 1999 points
Power supply:	2x1.5V batteries type AA LR6
Battery life:	approx 220 hours
AutoPowerOFF:	after15 min of idleness
Safety:	IEC/EN 61010-1
Category of measurement:	CAT IV 600V – CAT III 1000V
Insulation:	double insulation
Pollution degree:	2
Max height of use:	2000m
Size (LxWxH):	163x88x48mm
Weight (included batteries):	approx 280g

TECHNICAL SPECIFICATIONS	
DC Voltage	
Measurement range:	0.2mV ÷ 600V
Resolution:	0.1mV ÷ 1V
Basic accuracy:	±(0.8%rdg + 1dgt)
Overload protection:	600Vrms
AC Voltage	
Measurement range:	0.2mV ÷ 600V
Resolution:	0.1mV1V
Basic accuracy:	±(1.5%rdg + 3dgt)
Overload protection:	600Vrms
Resistance and continuity test	
Measurement range:	0.1Ω ÷ 20MΩ
Resolution:	0.1Ω ÷ 10kΩ
Basic accuracy:	±(1.0%rdg + 3dgt)
Buzzer:	<120Ω
Temperature with type K probe *(only HT322)*	
Measurement range:	-40°C ÷ 800°C
Resolution:	1°C
Basic accuracy:	±(2.0%rdg + 3dgt)
Overload protection:	600Vrms

ACCESSORIES	Code
Standard	
- Couple of test leads	4413-2
- Carrying bag	B80
- Batteries	
- User manual	
Optional	
- Adapter for type K probes *(only HT322)*	T10
- Type K probe for air/gas *(only HT322)*	TK107
- Type K probe for semi solid substances *(only HT322)*	TK108
- Type K probe for liquid *(only HT322)*	TK109
- Type K probe for surfaces *(solo HT322)*	TK110
- Type K probe for surfaces with 90° lead *(only HT322)*	TK111

HT321
HR000321

HT322
HR000322

HT326 - HT327
CAT IV DIGITAL PROFESSIONAL MULTIMETER

The **HT326** and **HT327** digital compact multimeters are designed in CAT IV 600V to perform AC/DC voltage, AC/DC current, resistance, continuity test, capacitance, frequency, duty cycle *(only HT326)* and diode test measurements. The **HT327** performs TRMS voltage and current measurements.

FUNCTIONS	HT326	HT327
TRMS measurements		•
AC Voltage	•	•
DC Voltage	•	•
AC Current	•	•
DC Current	•	•
Resistance	•	•
Continuity test	•	•
Frequency	•	•
Capacitance	•	•
Duty Cycle	•	
Diode test	•	•
Data HOLD	•	•
MAX/MIN		•
PEAK		•
Relative measurements	•	•
Manual range	•	•
Backlight	•	•
AutoPowerOFF	•	•

GENERAL SPECIFICATIONS	
Display:	LCD, 3¾ dgt, 3999 points *(HT326)* LCD, 4 dgt, 3999 points *(HT327)*
Power supply:	2x1.5V batteries type AA LR6
AutoPowerOFF:	after15 min of idleness
Safety:	IEC/EN 61010-1
Category of measurement:	CAT IV 600V – CAT III 1000V
Insulation:	double insulation
Pollution degree:	2
Max height of use:	2000m
Size (LxWxH):	163x88x48mm
Weight (included batteries):	280g *(HT326)*, 400g *(HT327)*

TECHNICAL SPECIFICATIONS	HT326	HT327
DC Voltage		
Measurement range:	0.1mV ÷ 600V	0.1mV ÷ 1000V
Resolution:	0.1mV÷1V	0.1mV÷1V
Basic accuracy:	±(0.8%rdg + 2dgt)	±(0.5%rdg + 2dgt)
Overload protection:	600Vrms	600Vrms
AC Voltage		
Measurement range:	0.1mV ÷ 600V	0.1mV ÷ 750V
Resolution:	0.1mV÷1V	0.1mV÷1V
Basic accuracy:	±(1.0%rdg + 3dgt)	±(1.0%rdg + 3dgt)
Overload protection:	600Vrms	1000Vrms
DC Current		
Measurement range:	0.01A ÷ 10A	0.1µA ÷ 10A
Resolution:	0.01A	0.1µA ÷ 0.01A
Basic accuracy:	±(1.2%rdg + 3dgt)	±(1.2%rdg + 3dgt)
Overload protection:	Fuse 10A/600V	Fuse 10A/1kV
AC Current		
Measurement range:	0.01A ÷ 10A	0.1µA ÷ 10A
Resolution:	0.01A	0.1µA ÷ 0.01A
Basic accuracy:	±(2.0%rdg + 5dgt)	±(1.2%rdg + 5dgt)
Overload protection:	Fuse 10A/600V	Fuse 10A/1kV
Resist. and continuity test		
Measurement range:	0.1Ω ÷ 40MΩ	0.1Ω ÷ 40MΩ
Resolution:	0.1Ω ÷ 0.01MΩ	0.1Ω ÷ 0.01MΩ
Basic accuracy:	±(1.0%rdg + 2dgt)	±(0.8%rdg + 2dgt)
Buzzer:	<140Ω	<35Ω
Overload protection:	600Vrms	600Vrms
Frequency		
Measurement range:	0.01kHz ÷99.99kHz	0.001kHz ÷ 400MHz
Resolution:	0.01Hz ÷10Hz	0.001kHz ÷0.1MHz
Basic accuracy:	±(1.5%rdg + 5dgt)	±(0.1%rdg + 2dgt)
Overload protection:	600Vrms	600Vrms
Capacitance		
Measurement range:	0.001nF ÷ 100µF	0.001nF ÷ 100mF
Resolution:	0.001nF ÷ 1µF	0.001nF ÷ 0.01mF
Basic accuracy:	±(3.0%rdg + 5dgt)	±(2.0%rdg + 8dgt)
Overload protection:	600Vrms	600Vrms
Duty Cycle *(only HT326)*		
Measurement range:	0.1% ÷ 80%	
Resolution:	0.1%	
Basic accuracy:	±(1.0%rdg + 5dgt)	
Overload protection:	600Vrms	

ACCESSORIES	Code
Standard	
- Couple of test leads	4413-2
- Carrying bag	B80
- Batteries	
- User manual	

HT327
HR000327

HT326
HR000326

HT570
DIGITAL MULTIMETER 3¾ DGT WITH AUTORANGE

HT570 model is the basic meter with high performance of the professional series which include also HT576 and HT579 models. The meter performs AC/DC voltage and AC/DC current measurements in complete autorange. HT570 is designed in CAT III 600V in compliance with IEC/EN61010-1 safety standard.

FUNCTIONS

- DC/AC Voltage up to 600V
- DC/AC Current up to 10A
- Resistance
- Continuity test
- Diode test
- Data HOLD
- Setting of manual range
- Bargraph
- AutoPOwerOFF

TECHNICAL SPECIFICATIONS

TDC Voltage	
Measurement range:	0.1mV ÷ 600V
Resolution:	0.1mV ÷ 1V
Basic accuracy:	±(1.0%rdg + 3dgt)
Overload protection:	600Vrms
AC Voltage	
Measurement range:	1mV ÷ 600V
Resolution:	1mV ÷ 1V
Basic accuracy:	±(1.4%rdg + 7dgt)
Overload protection:	600Vrms
DC Current	
Measurement range:	0.1A ÷ 10A
Resolution:	0.1A ÷ 10mA
Basic accuracy:	±(1.2%rdg + 3dgt)
Overload protection:	Fuse 0.63/250V, 10A/600V
AC Current	
Measurement range:	0.1A ÷ 10A
Resolution:	0.1A ÷ 10mA
Basic accuracy:	±(1.5%rdg + 6dgt)
Overload protection:	Fuse 0.63/250V, 10A/600V
Resistance and continuity test	
Measurement range:	0.1Ω ÷ 34MΩ
Resolution:	0.1Ω ÷ 10kΩ
Basic accuracy:	÷(1.2%rdg + 3dgt)
Buzzer:	<35Ω

GENERAL SPECIFICATIONS

Display:	LCD, 3 ¾ dgt, 3400 points
Conversion:	mean value
Power supply:	1x9V battery type IEC6F22
Battery life:	approx 170 hours
AutoPowerOFF:	after 10 min of idleness
Safety:	IEC/EN61010-1
Category of measurement:	CAT III 600V
Insulation:	double insulation
Pollution degree:	2
Max altitude:	2000m
Size (LxWxH):	167x77x36mm
Weight (included battery):	300g

ACCESSORIES	Codice
Standard	
- Couple of test leads	KIT4000A
- Battery	
- User manual	
Optional	
- Carrying bag	B80

HT576 - HT579
PROFESSIONAL DIGITAL MULTIMETER 4 DGT WITH RS-232

HT576 and **HT579** are professional multimeters to perform basically AC/DC voltage and AC/DC current measurements in complete autorange (TRMS measures for HT579). The models are designed to achieve the CAT III 600V and meet the safety requirements in accordance with the IEC/EN61010-1. Both models can be connected to a PC via RS-232 serial port totally optoinsulated and, by using a dedicated Windows software, it is possible the directly activation on PC the real-time recordings of the measured parameters.

FUNCTIONS	HT576	HT579
TRMS measurements		•
DC/AC Voltage	•	•
DC/AC Current	•	•
Resistance and Continuity test	•	•
Frequency		•
Capacitance		•
Total Harmonic Distortion (THD%)		•
Current readings in 4-20mA format		•
Diode test	•	•
Temperature with type K probes		•
Data HOLD	•	•
Real-time recording from PC		•
Relative measurement		•
Setting of manual range	•	•
Bargraph	•	•
RS-232 interface	•	•
AutoPowerOFF	•	•

GENERAL SPECIFICATIONS	
Display:	LCD, 4 dgt, 3999 points
Power supply:	1x9V battery type IEC6F22
AutoPowerOFF:	after 15 min of idleness
Safety:	IEC/EN 61010-1
Category of measurement:	CAT III 600V – CAT II 1000V
Insulation:	double insulation
Pollution degree:	2
Max altitude:	2000m
Size (LxWxH):	178x83x58mm
Weight (included battery):	400g

HT576
HR000576

TECHNICAL SPECIFICATIONS	HT576	HT579
DC Voltage		
Measurement range:	0.1mV ÷ 1000V	0.1mV ÷ 1000V
Resolution:	0.1mV÷1V	0.1mV÷0.1V
Basic accuracy:	±(0.6%rdg + 2dgt)	±(0.1%rdg + 2dgt)
Overload protection:	1000Vrms	1000Vrms
AC Voltage		
Measurement range:	0.1mV ÷ 1000V	0.1mV ÷ 1000V
Resolution:	0.1mV÷1V	0.1mV÷0.1V
Basic accuracy:	±(2.0%rdg + 2dgt)	±(1.1%rdg + 5dgt)
Overload protection:	1000Vrms	1000Vrms
DC Current		
Measurement range:	0.1µA ÷ 10A	0.1µA ÷ 10A
Resolution:	0.1µA ÷ 0.01A	0.1µA ÷ 0.01A
Basic accuracy:	±(0.1%rdg + 3dgt)	±(0.1%rdg + 3dgt)
Overload protection:	Fuse 10A/600V	Fuse 10A/1kV
AC Current		
Measurement range:	0.1µA ÷ 10A	0.1µA ÷ 10A
Resolution:	0.1µA ÷ 0.01A	0.1µA ÷ 0.01A
Basic accuracy:	±(2.0%rdg + 2dgt)	±(1.0%rdg + 5dgt)
Overload protection:	Fuse 10A/600V	Fuse 10A/1kV
Resistance and continuity test	0.1Ω ÷ 40MΩ	0.1Ω ÷ 40MΩ
Measurement range:	0.1Ω ÷ 10kΩ	0.1Ω ÷ 10kΩ
Resolution:	±(0.6%rdg + 3dgt)	±(0.8%rdg + 2dgt)
Basic accuracy:	<35Ω	<35Ω
Buzzer:	600Vrms	600Vrms
Frequency *(only HT579)*		
Measurement range:		0.001Hz ÷50kHz
Resolution:		0.001Hz ÷10Hz
Basic accuracy:		±(0.05%rdg + 4dgt)
Overload protection:		1000Vrms
Capacitance *(only HT579)*		
Measurement range:		1nF ÷ 99990µF
Resolution:		1nF ÷ 10µF
Basic accuracy:		±(2.0%rdg + 4dgt)
Overload protection:		600Vrms
Temperature with type K probe *(only HT579)*		
Measurement range:		-40 ÷ 850°C
Resolution:		1°C
Basic accuracy:		±(0.3%rdg + 3dgt)
Overload protection:		30Vrms

ACCESSORIES	Code
Standard	
- Couple of test leads	
- Adapter for type K probe, 2pcs *(only HT579)*	
- Type K bead probe, 2pcs *(only HT579)*	
- Software + serial cable *(only HT579)*	CP-05
- Battery	
- User manual	
Optional	
- Couple of test leads	KIT4000A
- Carrying bag	B80
- Software + serial cable	CP-05
- Type K probes (only HT579 – Pag 77)	

HT32 - HT37 - HT39
TRMS CAT IV PROFESSIONAL DIGITAL MULTIMETER

The models **HT32**, **HT37** and **HT39** are a family of professional TRMS multimeters able to perform AC/DC voltage, AC/DC current in complete Autorange. Each model has also the MIN/MAX, Data HOLD and AutoPowerOFF features. The HT39 model is also equipped with RS-232 serial interface for connection to a PC and use of dedicated software, more than a backlight function for comfortable reading even in poorly lit environments.

FUNCTIONS	HT32	HT37	HT39
TRMS measurements	•	•	•
DC/AC Voltage	•	•	•
DC/AC Current	•	•	•
Resistance and Continuity test	•	•	•
Frequency	•	•	•
Capacitance	•	•	•
Diode test	•	•	•
Data HOLD	•	•	•
MAX/MIN	•	•	•
PEAK		•	•
Relative measurement		•	•
Bargraph		•	•
Backlight			•
AutoPowerOFF	•	•	•
Real-time recording from PC			•
RS-232 interface			•

TECHNICAL SPECIFICATIONS	HT32	HT37-HT39
DC Voltage		
Measurement range:	0.1mV ÷ 1000V	0.1mV ÷ 1000V
Resolution:	0.1mV÷1V	0.1mV÷1V
Basic accuracy:	±(0.5%rdg + 2dgt)	±(0.5%rdg + 2dgt)
Overload protection:	1000VDC/750Vrms	1000Vrms
AC Voltage		
Measurement range:	0.1mV ÷ 750V	0.1mV ÷ 750V
Resolution:	0.1mV÷1V	0.1mV÷1V
Basic accuracy:	±(0.9%rdg + 5dgt)	±(1.2%rdg + 5dgt)
Overload protection:	1000VDC/750Vrms	1000Vrms
DC Current		
Measurement range:	0.1µA ÷ 0.01A	0.1µA ÷ 10A
Resolution:	0.1µA ÷ 0.01A	0.1µA ÷ 10mA
Basic accuracy:	±(1.0%rdg + 2dgt)	±(1.0%rdg + 2dgt)
Overload protection:	Fuse 10A/1000V	Fuse 10A/1kV
AC Current		
Measurement range:	0.1mA ÷ 10A	10mA ÷ 10A
Resolution:	0.1mA ÷ 10mA	10mA
Basic accuracy:	±(0.5%rdg + 5dgt)	±(1.5%rdg + 5dgt)
Overload protection:	Fuse 10A/1000V	Fuse 10A/1kV
Resistance and continuity test		
Measurement range:	0.1Ω ÷ 60MΩ	0.1Ω ÷ 40MΩ
Resolution:	0.1Ω ÷ 0.01MΩ	0.1Ω ÷ 0.01MΩ
Basic accuracy:	±(0.7%rdg + 2dgt)	±(0.7%rdg + 2dgt)
Buzzer:	<500Ω	<450Ω
Overload protection:	600Vrms	600Vrms
Frequency		
Measurement range:	1Hz ÷60MHz	1Hz ÷40MHz
Resolution:	1Hz ÷0.01MHz	1Hz ÷0.01MHz
Basic accuracy:	±(0.1%rdg + 1dgt)	±(0.1%rdg + 1dgt)
Overload protection:	600Vrms	600Vrms
Capacitance		
Measurement range:	0.001nF ÷ 6mF	0.001nF ÷ 40mF
Resolution:	0.001nF ÷ 0.001mF	0.001nF ÷ 0.01mF
Basic accuracy:	±(1.9%rdg + 8dgt)	±(2.0%rdg + 8dgt)
Overload protection:	600Vrms	600Vrms

GENERAL SPECIFICATIONS	
Display:	LCD, 4 dgt, 4000 points
Power supply:	1x9V battery type IEC6F22
AutoPowerOFF:	after 30 min of idleness
Safety:	IEC/EN 61010-1
Category of measurement:	CAT IV 600V – CAT III 1000V
Insulation:	double insulation
Pollution degree:	2
RS-232 interface:	optical/serial *(only HT39)*
Size (LxWxH):	164x82x44mm
Weight (included battery):	400g

ACCESSORIES	Code
Standard	
- Couple of test leads	4413-2
- Rubber protection holster	
- Battery	
- User manual	
Optional	
- Carrying bag	B80
- Windows software + serial cable *(only HT39)*	SW39

HT710 - HT712
PEN DIGITAL MULTIMETERS

The **HT710** and **HT712** models are designed to achieve, so simple and immediate, basic features of a classic digital multimeter as a result of narrow and elongated structure capable of meeting the common demands of each installer. The **HT710** performs AC/DC voltage, frequency, resistance and continuity test. **HT712** model also allows the implementation of the measure of phase sequence indication and phase conformity with the innovative 1-wire method.

FUNCTIONS	HT710	HT712
TRMS measurements		•
DC/AC Voltage	•	•
AC Voltage with 1-wire method		•
AC/DC automatic signal detection		•
Resistance and continuity test	•	•
Frequency	•	•
Frequency with 1-wire method		•
Diode test	•	
Phase sequence indication with 1-wire		•
Phase conformity indication with 1-wire		
Data HOLD	•	•
OK/FAIL led indications		•
Manual range	•	•
Relative measurement	•	
AutoPowerOFF	•	•

HT710
HR000710

HT712
HR000712

TECHNICAL SPECIFICATIONS	HT710	HT712
DC Voltage		
Measurement range:	0.1mV ÷ 600V	1.5V ÷ 600V
Resolution:	0.1mV÷1V	0.1V
Basic accuracy:	±(0.8%rdg + 2dgt)	±(0.8%rdg + 2dgt)
Overload protection:	600Vrms	600Vrms
AC Voltage with 2-wires		
Measurement range:	0.1mV ÷ 600V	0.1mV ÷ 600V
Resolution:	0.1mV÷1V	0.1V
Basic accuracy:	±(1.0%rdg + 2dgt)	±(1.5%rdg + 5dgt)
Overload protection:	660Vrms	660Vrms
Resistance and continuity test		
Measurement range:	0.1Ω ÷ 40MΩ	1Ω ÷ 1500Ω
Resolution:	0.1Ω ÷ 0.01MΩ	1Ω
Basic accuracy:	±(1.0%rdg + 3dgt)	±(1.0%rdg + 3dgt)
Buzzer:	<100Ω	<100Ω
Frequency with 2-wires		
Measurement range:	0.00Hz ÷ 9.999kHz	40Hz ÷ 69Hz
Resolution:	0.01Hz ÷0.01kHz	0.1Hz
Basic accuracy:	±(0.8%rdg + 2dgt)	±(0.5%rdg + 1dgt)
Overload protection:	660Vrms	660Vrms
Phase sequence indication with 1-wire *(only HT712)*		
Measurement range:		100V ÷ 600V
Resolution:		1V
Overload protection		600Vrms

GENERAL SPECIFICATIONS	
Display:	LCD, 3 3/4 dgt, 4000 points
Power supply:	2x1.5V batteries type AAA
Battery life:	approx 170 hours
AutoPowerOFF:	after 5 min of idleness
Safety:	IEC/EN 61010-1
Category of measurement:	CAT IV 600V
Insulation:	double insulation
Pollution degree:	2
Max altitude:	2000m
Size (LxWxH):	250x51x30mm
Weight (included batteries):	150g

ACCESSORIES	Code
Standard	
- Red test leads	P711EU
- Black test leads	P710EU
- Carrying bag	B700
- Batteries	
- ISO9000 calibration certificate *(only HT712)*	
- User manual	

HT603
POCKET DIGITAL MULTIMETER

NEW

HT603
HR000603

HT603 model is a digital multimeter in autorange easy to use and extremely compact thanks to the handy box containing tips test leads. This tool allows to perform AC/DC voltage, resistance, diode test and continuity test measurements

FUNCTIONS

- DC voltage from 0.1mV to 600V
- AC voltage from 1mV to 600V
- Resistance from 0.1 to 30MΩ
- Continuity test
- Diode test
- Data HOLD, autorange, bargraph
- Selection of manual range
- AutoPowerOFF after 10 min of idleness
- Safety: IEC/EN61010-1, CAT III 300V, CAT II 600V
- Power supply: 1x3V battery type CR2032
- Display: LCD, 3 3/4 dgt, 3200 points
- Size (LxWxH): 78x118x16mm
- Weight: 110g
- Accessories: test leads + battery + user manual

HT20
PEN VOLTAGE DETECTOR WITH WHITE LED TORCH

NEW

HT20
HR000296

The **HT20** pen voltage detector permits to quickly verify the presence of AC voltage on any type of electrical installations with and without direct contact. A red LED light on and a beeper detect the presence of tension

FUNCTIONS

- AC voltage range: 100V ÷ 1000V to ground
- Frequency range: 50/60Hz
- Red LED and buzzer for voltage detection
- White LED torch with ON/OFF key
- Practical pen clip
- Safety: IEC/EN61010-1, CAT IV 1000V
- Pollution degree: 2
- Power supply: 2x1.5V batteries type AAA IECLR03
- Size (LxWxH): 160 x 26 x 20mm
- Weight (with batteries): 48g
- Accessories: batteries + user manual

HT17
PEN VOLTAGE DETECTOR

HT17
HR000017

The model **HT17** is a practical voltage detector which permits to check the voltage on each type of electrical application (sockets, cables, fuses, circuit breakers, equipment, etc.) with and without contact with the object. The indication light and sound (beep) shows the detection of voltage. A selector permits a fine sensitivity adjustment in order to obtain precise voltage detection on object on test

FUNCTIONS

- AC voltage from 100V to 600V with and without contact
- Red LED and buzzer for voltage detection
- Fine sensitivity adjustment
- Practical pen clip
- Safety: IEC/EN61010-1, CAT III 600V
- Power supply: 2 alkaline dish batteries type A76 LR44
- Size (LxW): 120x15xmm
- Weight (with batteries): 20g
- Accessories: batteries + user manual

HT21
COMPACT DIGITAL 3 1/2 DIGITS MULTIMETER

HT21
HR000021

HT21 is a 3 1/2 digits multimeter for AC/DC voltage up to 600V, resistance, continuity test and diode test on CAT III 600V electrical installations.

FUNCTIONS

- DC voltage from 1mV to 600V
- AC voltage from 0.1V to 600V
- Resistance from 1 to 2MΩ
- Continuity test
- Diode test
- Data HOLD
- Safety: IEC/EN61010-1, CAT III 600V
- Power supply: 1x9V battery type IEC 6F22
- Display: LCD, 3 1/2 dgt, 2000 points
- Size (LxWxH): 144x70x40mm
- Weight: 280g
- Accessories: test leads + battery + carrying bag + user manual

HT14N
ANALOGICAL MULTIMETER

HT14N
HR000114

HT14N is a analogical multimeter for AC/DC voltage up to 500V, DC current up to 100mA, resistance and battery test features.

FUNCTIONS

- DC voltage with 2.5, 25, 250, 500V scales
- AC voltage with 25, 250, 500V scales
- DC current with 1, 10, 100mA scales
- Resistance with Rx10, Rx100, Rx1000 scales
- 1.5V and 9V test batteries
- Safety: IEC/EN61010-1, CAT II 300V
- Power supply: 1x1.5V battery type AA LR06
- Size (LxWxH): 145x80x45mm
- Weight (included battery): 25g
- Accessories: test leads + battery + rubber holster + user manual

HT70
PEN PHASE SEQUENCE INDICATOR AND CONFORMITY TEST

NEW

HT70
HR000070

Incorrect phase sequence

Correct phase sequence

HT70 is a practical pen voltage detector which perform also phase sequence indications and conformity test with LED indications and buzzer.

FUNCTIONS

- AC voltage range: 100V ÷ 1000V to ground
- Frequency range: 50/60Hz
- LED red/green + buzzer for indication of test
- Pocket clip
- Safety: IEC/EN61010-1, CAT IV 1000V
- Pollution degree: 2
- Power supply: 2x1.5V batteries type AAA IECLR03
- Battery life: >9000 tests
- Size (LxWxH): 160 x 26 x 20mm
- Weight (included batteries): 48g
- Accessories: batteries + user manual

HT82
PHASE SEQUENCE INDICATION

HT82
HA000156

HT82 model is a digital portable meter to perform the phase sequence indication with 3-wire method on standard three phase system. The meter shows the "R" indication in positive test and "L" indication in the opposite case.

FUNCTIONS

- AC voltage range from 40 to 690V
- Frequency range: from 15Hz to 400Hz
- "R" and "L" indications at display
- LCD custom display
- Protection holster
- Safety: IEC/EN61010-1, CAT III 600V
- Power supply: directly from network
- Size (LxWxH): 130x69x22mm
- Weight: 130g
- Accessories: 3 cables + 3 alligator clip + carrying bag + user manual

AMPEROMETRIC CLAMPS

FUNCTIONS	HT7011	HT4012	HT4014	HT7010	HT7602	HT7012	HT79
Current range of measurements	200A	400A	400A	400A	400A	600A	600A
TRMS measurement							•
LCD resolution (points)	2000	2000	4000	6000	4000	4000	4000
DC Voltage	•	•	•	•	•	•	•
AC Voltage	•	•	•	•	•	•	•
DC Current							
AC Current	•	•	•	•	•	•	•
AC+DC Current							
Inrush current of motors							
AC/DC voltage detector	•						
Resistance	•	•	•	•	•	•	•
Frequency			•		•	•	•
Continuity test	•	•	•	•	•	•	•
Leakage current							
Diode test	•	•			•		
Duty Cycle					•		
Capacitance					•		
Temperature with type K probe							
Phase sequence indication 1 and 2-wires							
Phase conformity with 1-wire							
Active power							
Active/reactive/apparent power							
Power factor (cosφ)							
Energy							
Voltage/current harmonics up to 25th							
Total Harmonic Distortion (THD%)							
Category of measurement	CAT III 1000V CAT IV 600V	CAT III 600V	CAT III 600V	CAT III 600V	CAT III 300V CAT II 600V	CAT III 600V	CAT II 1000V CAT III 600V CAT IV 600V
Bargraph			•			•	•
Backlight			•			•	
Autorange	•	•	•	•	•	•	•
AutoPOwerOFF	•	•	•	•	•	•	•
PEAK function						•	
Data HOLD function	•	•	•	•	•	•	•
MAX/MIN function			•		•	•	•
AVG (Average) function							
Automatic detection of parameters				•			
Relative measurement					•		•
Maximum diameter of cable	16mm	30mm	30mm	27mm	27mm	34mm	40mm
Sizes (L x W x H)mm	193x54x31	205x64x39	205x64x39	198x66x46	171x58x27	220x76x50	260x85x46
Weight	280g	280g	280g	260g	140g	460g	380g
PAGE	56	58	58	59	57	60	61

		AC/DC CLAMPS			LEAKAGE	POWER/HARMONIC CLAMPS		
			NEW			NEW	NEW	NEW
HT7016	**HT7019**	**HT4016**	**HT7015**	**HT7021**	**HT77**	**HT7022**	**HT4020**	**HT4022**
1000A	1000A	400A	600A	1000A	90A	600A	400A	400A
	•		•	•	•	•	•	•
4000	4000	4000	4000	4000	4000	6000	10000	10000
•	•	•	•	•		•	•	•
•	•	•	•	•	•	•	•	•
		•	•	•		•		
•	•	•	•	•	•	•	•	•
						•		
						•		
•	•	•	•	•	•	•	•	•
•	•		•	•	•	•	•	•
•	•	•	•	•	•	•	•	•
					•			
						•		
						•		
						•	•	•
							•	•
						•	•	•
							•	•
						•	•	•
							•	•
								•
						•		•
CAT III 1000V CAT IV 600V	CAT III 1000V CAT IV 600V	CAT III 600V	CAT III 600V	CAT III 1000V CAT IV 600V	CAT III 600V CAT IV 600V	CAT III 600V	CAT III 600V	CAT III 600V
•	•	•	•	•				
•	•	•	•	•		•	•	•
•	•	•	•	•		•	•	•
•	•	•	•	•	•	•	•	•
•	•		•	•	•	•	•	•
•	•	•	•	•	•	•	•	•
•	•	•	•	•		•	•	•
							•	•
•	•	•	•	•		•		
51mm	51mm	30mm	51mm	51mm	30mm	34mm	30mm	30mm
275x90x51	275x90x51	205x64x39	235x78x51	275x90x51	250x85x46	235x78x51	205x64x39	205x64x39
420g	420g	280g	480g	520g	400g	380g	280g	280g
62	62	63	64	64	65	66	66	67

HT7011
FORK AMPEROMETRIC CLAMP AC 400A WITH VOLTSENSE

The model **HT7011** is an innovative amperometric clamp designed to measure AC current up to 200A by using "open clamp" technology in which the cable is simply inserted into the fork open at the top of the instrument. This system thus provides considerable flexibility and speed in the current measurement. **HT7011** also has a integrated VoltSense sensor which can detect the presence of voltage on a cable or other electrical device closest of the same with and without contact. The meter also performs DC/AC voltage measurement for the achievement of CAT IV 600V and CAT III 1000V according to IEC/EN61010-1. Further features performed are resistance, continuity test and diode test. Each function of measurement can be selected via a switch to 6 positions, including a HOLD function key. The extreme simplicity of use and innovative features make the model **HT7011** an ideal meter for any electrical installer.

FUNCTIONS

- AC current up to 200A
- AC/DC voltage up to 750V/1000V
- Resistance
- Continuity test
- Diode test
- "VoltSense" sensor for AC/DC voltage detection
- Autorange
- Data HOLD
- AutoPowerOFF

TECHNICAL SPECIFICATIONS

DC Voltage	
Measurement range:	0.1V ÷ 1000V
Resolution:	0.1V ÷ 1V
Basic accuracy:	±(1.0%rdg + 2dgt)
Overload protection:	1000VDC
AC Voltage	
Measurement range:	0.1V ÷ 750V
Resolution:	0.1V ÷ 1V
Basic accuracy:	±(1.5%rdg + 5dgt)
Overload protection:	750Vrms
AC Current	
Measurement range:	0.1A ÷ 200A
Resolution:	0.1A
Basic accuracy:	±(3.0%rdg + 3dgt)
Overload protection:	400Arms
Resistance and continuity test	
Measurement range:	0.1Ω ÷ 20MΩ
Resolution:	0.1Ω ÷ 0.01MΩ
Basic accuracy:	±(1.0%rdg + 2dgt)
Buzzer:	<50Ω

GENERAL SPECIFICATIONS

Display:	LCD, 3½ dgt, 2000 points
Conversion:	mean value
Power supply:	2x1.5V batteries type AAA
Battery life:	approx 250 hours
AutoPowerOFF:	after 10 min of idleness
Max diameter of clamped cable:	16mm
Safety:	IEC/EN61010-1
Category of measurement:	CAT IV 600V;CAT III 1000V
Size (LxWxH):	193x54x31mm
Weight (included batteries):	280g

ACCESSORIES	Code
Standard	
- Couple of test leads	4413-2
- Batteries	
- Carrying bag	
- User manual	

HT7011
HP007011

HT7602
SMALL MULTIFUNCTIONAL AMPEROMETRIC CLAMP AC 400A

HT7602 amperometric clamp has been designed to obtain a significant number of functions of measurement (13 available) with very reduced sizes (just 17cm in length) so that they can be used in any type of situation in electrical installations. The model primarily measures AC current up to 400A and AC/DC voltage up to 600V according to the rules of safety IEC/EN61010-1. The meter has also the Data HOLD function, the MIN and MAX values measurement and a high-resolution display (4000 points) in order to reach an high accuracy.

FUNCTIONS

- AC current up to 400A
- AC/DC voltage up to 600V
- Frequency by test leads
- Frequency by jaws
- Duty Cycle
- Resistance
- Continuity test with buzzer
- Diode test
- Capacitance
- MAX/MIN
- Relative measurement
- Autorange
- Data HOLD
- AutoPowerOFF

TECHNICAL SPECIFICATIONS

DC Voltage	
Measurement range:	0.1mV ÷ 600V
Resolution:	0.1mV ÷ 1V
Basic accuracy:	±(1.0%rdg + 2dgt)
Overload protection:	1000Vrms
AC Voltage	
Measurement range:	1mV ÷ 600V
Resolution:	1mV ÷ 1V
Basic accuracy:	±(1.5%rdg + 5dgt)
Overload protection:	1000Vrms
AC Current	
Measurement range:	10mA ÷ 400A
Resolution:	10mA ÷ 100mA
Basic accuracy:	±(1.5%rdg + 5dgt)
Overload protection:	600Arms
Frequency with clamp	
Measurement range:	10mHz ÷ 1kHz
Resolution:	10mHz ÷ 1Hz
Basic accuracy:	±(0.2%rdg + 2dgt)
Overload protection:	400Arms
Frequency with test leads	
Measurement range:	10mHz ÷ 50kHz
Resolution:	10mHz ÷ 10Hz
Basic accuracy:	±(0.2%rdg + 2dgt)
Overload protection:	600Arms
Resistance and continuity test	
Measurement range:	0.1Ω ÷ 40MΩ
Resolution:	0.1Ω ÷ 10kΩ
Basic accuracy:	±(0.7%rdg + 3dgt)
Buzzer:	<50Ω
Duty cycle	
Measurement range:	5.0% ÷ 65%
Resolution:	0.1%
Basic accuracy:	±(2.0%rdg + 3dgt)
Capacitance	
Measurement range:	10pF ÷ 100µF
Resolution:	10pF ÷ 100µF
Basic accuracy:	±(5.0%rdg + 10dgt)
Overload protection:	300Vrms

GENERAL SPECIFICATIONS

Display:	LCD, 4dgt, 4000 points
Conversion:	mean value
Power supply:	2x1.5V batteries type AAA
Battery life:	approx 220 hours
AutoPowerOFF:	after 12 min of idleness
Max diameter of clamped cable:	27mm
Safety:	IEC/EN61010-1
Category of measurement:	CAT II 600V ; CAT III 300V
Size (LxWxH):	171x58x27mm
Weight (included batteries):	140g

ACCESSORIES	Code
Standard	
- Couple of test leads	P7602
- Batteries	
- Carrying bag	
- User manual	

HT4012 - HT4014
AMPEROMETRIC CLAMPS AC 400A IN AUTORANGE

The **HT4012** and **HT4014** amperometric clamps run mainly AC current measurements up to 400A (HT4014 in total Autorange), AC/DC voltage, resistance and continuity test. Thanks to the practical and patented rubber protection which covers the clamp is possible to enter a tip into the slot free and, therefore, operating with one hand, is ensured simplicity and speed during measurements. The models are compliance with IEC/EN61010-1 CAT III 600V and are ideal for measurements in both civil and industrial environments

FUNCTIONS	HT4012	HT4014
AC/DC voltage	•	•
AC current	•	•
Resistance and continuity test	•	•
Frequency		•
Diode test	•	•
Data HOLD	•	•
MAX/MIN		•
Selection of manual range	•	
Backlight		•
Bargraph		•
AutoPowerOFF	•	•

TECHNICAL SPECIFICATIONS	HT4012	HT4014
DC Voltage		
Measurement range:	1mV ÷ 600V	1mV ÷ 600V
Resolution:	1mV ÷1V	1mV ÷1V
Basic accuracy:	±(0.8%rdg + 2dgt)	±(0.8%rdg + 2dgt)
Overload protection:	600Vrms	600Vrms
AC Voltage		
Measurement range:	1mV ÷ 600V	0.1mV ÷ 600V
Resolution:	1mV ÷ 1V	0.1mV ÷1V
Basic accuracy:	±(1.0%rdg + 3dgt)	±(1.0%rdg + 3dgt)
Overload protection:	600Vrms	600Vrms
AC Current		
Measurement range:	0.1A ÷ 400A	0.1A ÷ 400A
Resolution:	0.1A ÷ 1A	0.01A ÷ 0.1A
Basic accuracy:	±(2.0%rdg + 10dgt)	±(2.0%rdg + 10dgt)
Overload protection:	600Arms:	600Arms:
Resistance and continuity test		
Measurement range:	0.1Ω ÷ 20MΩ	0.1Ω ÷ 40MΩ
Resolution:	0.1Ω ÷ 10kΩ	0.1Ω ÷ 10kΩ
Basic accuracy:	±(1.0%rdg + 3dgt)	±(1.0%rdg + 3dgt)
Measurement range:	<25Ω	<40Ω
Buzzer:	600VAC/DCrms	600VAC/DCrms
Frequency with test leads		
Measurement range:		1Hz ÷ 400kHz
Resolution:		1Hz ÷ 100Hz
Basic accuracy:		±(0.8%rdg+ 3dgt)
Overload protection:		600Vrms

GENERAL SPECIFICATIONS	
Display:	LCD 3 3/4 dgt, 2000 points *(HT4012)*
	LCD 3 3/4 dgt, 4000 points *(HT4014)*
Conversion :	mean value
Power supply:	2x1.5V batteries type AAA LR03
AutoPowerOFF:	after 10 min of idleness *(HT4012)*
	after 30 min of idleness *(HT4014)*
Safety:	IEC/EN 61010-1
Category of measurement:	CAT III 600V
Insulation:	double insulation
Pollution degree:	2
Max altitude:	2000m
Max diameter of clamped cable:	30mm
Size (LxWxH):	205x64x39mm
Weight (included batteries)	280g

ACCESSORIES	Code
Standard	
- Couple of test leads	4413-2
- Carrying bag	B80
- Rubber clamp protection	
- Batteries	
- User manual	

HT7010
AMPEROMETRIC CLAMP AC 400A WITH AUTOMATIC SELECTION OF MEASUREMENTS

The **HT7010** amperometric clamp, totally in Autorange, is incredibly easy to use (it is sufficient to turn on the meter and it will automatically set the range and type of the measurement). Based of this feature is therefore minimized the possibility of errors by the operator during the connection on installations. **HT7010** has a useful Data HOLD function to freeze the reading on the display, the AutoPowerOFF to preserve its internal battery and is possible to graft for tips on the back during idleness.

FUNCTIONS

- AC current up to 400A
- AC/DC voltage up to 600V
- Resistance
- Continuity test
- Automatic detection of any measurements
- Autorange
- Data HOLD

TECHNICAL SPECIFICATIONS

DC Voltage	
Measurement range:	1.8V ÷ 600V
Resolution:	0.1V
Basic accuracy:	±(1.0%rdg + 2dgt)
Overload protection:	600VDC
AC Voltage	
Measurement range:	1.3V ÷ 600V
Resolution:	0.1V
Basic accuracy:	±(1.5%rdg + 3dgt)
Overload protection:	600Vrms
AC Current	
Measurement range:	0.6A ÷ 400A
Resolution:	0.1A
Basic accuracy:	±(1.8%rdg + 3dgt)
Overload protection:	400Arms
Resistance and continuity test	
Measurement range:	0.1Ω ÷ 2kΩ
Resolution:	0.1Ω ÷ 1Ω
Basic accuracy:	±(2.0%rdg + 2dgt)
Measurement range:	<25Ω

GENERAL SPECIFICATIONS

Display:	LCD, 3 3/4 dgt, 6000 points
Conversion :	mean value
Power supply:	1x9V battery type IEC 6F22
Battery life:	approx 250 hours
AutoPowerOFF:	after 30 min of idleness
Max diameter of clamped cable:	27mm
Safety:	IEC/EN61010-1
Category of measurement:	CAT III 600V
Size (LxWxH):	198x66x46mm
Weight (included batteries):	260g

ACCESSORIES	Code
Standard	
- Couple of test leads	4413-2
- Batteries	
- Carrying bag	
- User manual	

HT7010
HP007010

HT7012
PROFESSIONAL AMPEROMETRIC CLAMP AC 600A IN AUTORANGE

The professional **HT7012** amperometric clamp is designed for AC current measurement up to 600A for the achievement of CAT III 600V according to IEC/EN61010-1. The meter has a large display with 4000 points reading, backlight and analog bargraph for easy readings even in poor lit environments. The **HT7012** has the AutoPowerOFF function in order to preserve its internal battery.

FUNCTIONS

- AC current up to 600A
- AC/DC voltage up to 600V
- Resistance and continuity test
- Frequency
- Autorange
- Data HOLD
- MAX/MIN
- PEAK
- Bargraph
- Backlight
- AutoPowerOFF

TECHNICAL SPECIFICATIONS

DC Voltage	
Measurement range:	0.1V ÷ 600V
Resolution:	0.1V ÷ 1V
Basic accuracy:	±(0.7%rdg + 2dgt)
Overload protection:	600VDC
AC Voltage	
Measurement range:	0.1V ÷ 600V
Resolution:	0.1V ÷ 1V
Basic accuracy:	±(1.0%rdg + 5dgt)
Overload protection:	600Vrms
AC Current	
Measurement range:	0.1A ÷ 600A
Resolution:	0.1A ÷ 1A
Basic accuracy:	±(1.9%rdg + 5dgt)
Overload protection:	600Arms
Resistance and continuity test	
Measurement range:	0.1Ω ÷ 400Ω
Resolution:	0.1Ω
Basic accuracy:	±(1.0%rdg + 3dgt)
Buzzer:	<30Ω
Frequency with clamp	
Measurement range:	20Hz ÷ 400Hz
Resolution:	1Hz
Basic accuracy:	±(0.1%rdg + 2dgt)
Overload protection:	600Arms

GENERAL SPECIFICATIONS

Display:	LCD, 3 3/4 dgt, 4000 points
Conversion :	mean value
Power supply:	2x1.5V batteries type AA LR06
Battery life:	approx 600 hours
AutoPowerOFF:	after 30 min of idleness
Max diameter of clamped cable:	34mm
Safety:	IEC/EN61010-1
Category of measurement:	CAT III 600V
Size (LxWxH):	220x76x50mm
Weight (included batteries)	460g

ACCESSORIES	Code
Standard	
- Couple of test leads	4413-2
- Batteries	
- Carrying bag	
- User manual	

HT7012
HP007012

HT79
TRMS AMPEROMETRIC CLAMP AC 600A

The **HT79** TRMS amperometric clamp has been designed for AC current measurement up to 600A for the achievement of CAT IV 600V according to IEC/EN61010-1. Other measures are AC/DC voltage, resistance, frequency and continuity test. The instrument has a display at 4000 points with analog bargraph which can make it easy the readings even in the most difficult environments and have the AutoPowerOFF feature to preserve internal battery.

FUNCTIONS

- DC/AC TRMS voltage up to 1000/750V
- Resistance and continuity test
- Frequency
- Autorange / manual range
- Data HOLD
- MAX/MIN
- Relative measurement
- Bargraph
- AutoPowerOFF

TECHNICAL SPECIFICATIONS

DC Voltage	
Measurement range:	0.1mV ÷ 1000V
Resolution:	0.1mV ÷ 1V
Basic accuracy:	±(0.5%rdg + 3dgt)
Overload protection:	1000VDC/750VACrms
AC TRMS Voltage	
Measurement range:	0.1mV ÷ 1000V
Resolution:	0.1mV ÷ 1V
Basic accuracy:	±(1.5%rdg + 5dgt)
Overload protection:	1000VDC/750VACrms
AC TRMS Current	
Measurement range:	0.01A ÷ 600A
Resolution:	0.01A ÷ 1A
Basic accuracy:	±(2.5%rdg + 5dgt)
Overload protection:	600Arms
Resistance and continuity test	
Measurement range:	0.1Ω ÷ 40MΩ
Resolution:	0.1Ω ÷ 10kΩ
Basic accuracy:	±(1.0%rdg + 3dgt)
Buzzer:	<40Ω
Frequency with clamp	
Measurement range:	1Hz ÷ 400Hz
Resolution:	1Hz
Basic accuracy:	±(0.5%rdg + 3dgt)
Overload protection:	600Arms
Frequency with test leads	
Measurement range:	1Hz ÷ 400kHz
Resolution:	1Hz ÷ 100Hz
Basic accuracy:	±(0.5%rdg + 3dgt)
Overload protection:	600VDC/ACrms

GENERAL SPECIFICATIONS

Display:	LCD, 3 3/4 dgt, 4000 points
Conversion:	TRMS
Power supply:	1x9V battery type IEC 6F22
Battery life:	approx 200 hours
AutoPowerOFF:	after 30 min of idleness
Max diameter of clamped cable:	40mm
Safety:	IEC/EN61010-1
Category of measurement:	CAT IV 600V CAT II 1000V
Size (LxWxH):	260x85x46mm
Weight (included battery)	380g

ACCESSORIES	Code
Standard	
- Couple of test leads	4312-2
- Couple of alligator clips	
- Battery	
- Carrying bag	
- User manual	

HT7016 - HT7019
PROFESSIONAL AMPEROMETRIC CLAMPS AC 1000A IN AUTORANGE

The **HT7016** and **HT7019** professional amperometric clamps perform mainly AC current measurement up to 1000A (HT7019 in TRMS), AC/DC voltage, resistance, frequency and continuity test. The meters are designed in compliance with IEC/EN61010-1 CAT IV 600V, CAT III 1000V and are ideal solution for measurements in both civil and industrial environments.

FUNCTIONS	HT7016	HT7019
TRMS measurements		•
DC/AC voltage	•	•
AC current up to 1000A	•	•
Resistance and continuity test	•	•
Frequency	•	•
Autorange	•	•
Data HOLD	•	•
MAX/MIN	•	•
PEAK	•	•
Backlight	•	•
Bargraph	•	•
AutoPowerOFF	•	•

TECHNICAL SPECIFICATIONS	HT7016	HT7019
DC Voltage		
Measurement range:	0.1V ÷ 1000V	0.1V ÷ 1000V
Resolution:	0.1V ÷ 1V	0.1V ÷ 1V
Basic accuracy:	±(0.7%rdg + 2dgt)	±(0.7%rdg + 2dgt)
Overload protection:	1000VDC/750VAC	1000VDC/750VAC
AC Voltage *(TRMS only for HT7019)*		
Measurement range:	0.1V ÷ 750V	0.1V ÷ 750V
Resolution:	0.1V ÷ 1V	0.1V ÷ 1V
Basic accuracy:	±(1.0%rdg + 5dgt)	±(1.0%rdg + 5dgt)
Overload protection:	1000VDC/750VAC	1000VDC/750VAC
AC Current *(TRMS only for HT7019)*		
Measurement range:	0.1A ÷ 1000A	0.1A ÷ 1000A
Resolution:	0.1A ÷ 1A	0.1A ÷ 1A
Basic accuracy:	±(1.9%rdg + 5dgt)	±(1.9%rdg + 5dgt)
Overload protection:	600Arms	600Arms
Resistance and continuity test		
Measurement range:	0.1Ω ÷ 400Ω	0.1Ω ÷ 400Ω
Resolution:	0.1Ω	0.1Ω
Basic accuracy:	±(1.0%rdg + 3dgt)	±(1.0%rdg + 3dgt)
Buzzer:	<30Ω	<30Ω
Overload protection:	600Vrms	600Vrms
Frequency with clamp		
Measurement range:	20Hz ÷ 400Hz	20Hz ÷ 400Hz
Resolution:	1Hz	1Hz
Basic accuracy:	±(0.1%rdg+ 2dgt)	±(0.1%rdg+ 2dgt)
Overload protection:	1000Arms	1000Arms

GENERAL SPECIFICATIONS	
Display	LCD 3 3/4 dgt, 4000 points
Conversion:	mean value *(HT7016)* TRMS *(HT7019)*
Power supply:	2x1.5V batteries type AA LR0 *(HT7016)* 1x9V battery type IEC 6F22 *(HT7019)*
AutoPowerOFF:	after 30 min of idleness
Safety:	IEC/EN 61010-1
Category of measurement:	CAT IV 600V, CAT III 1000V
Insulation:	double insulation
Pollution degree:	2
Max altitude:	2000m
Max diameter of clamped cable:	51mm
Size (LxWxH):	275x90x51mm
Weight (included batteries)	420g

ACCESSORIES	Code
Standard	
- Couple of test leads	4413-2
- Batteries	
- Carrying bag	
- User manual	

HT7016
HP007016

HT7019
HP007019

HT4016
AMPEROMETRIC CLAMP AC/DC 400A

The **HT4016** amperometric clamp can perform AC and DC current measurements up to 400 A in Autorange, AC/DC voltage resistance and continuity. Thanks to the practical and patented protective rubber which covers the clamp is possible to enter a tip into the slot free and, therefore, operating with one hand, is ensured simplicity and speed during measurements. The large LCD display to 3 3/4 digits with backlight and analog bargraph allows easy reading even in critical environments. The instrument is compliance with IEC/EN61010-1 in CAT III 600V and is a ideal solution for measurements in both civil and industrial environments.

FUNCTIONS

- AC/DC current up to 400A
- AC/DC voltage up to 600V
- Resistance and continuity test
- Manual range
- Data HOLD
- MAX/MIN
- Relative measurement
- Bargraph
- Backlight
- AutoPowerOFF

TECHNICAL SPECIFICATIONS

DC Voltage	
Measurement range:	0.1mV ÷ 600V
Resolution:	0.1mV ÷ 1V
Basic accuracy:	±(0.8%rdg+2dgt)
Overload protection:	600Vrms
AC Voltage	
Measurement range:	0.1mV ÷ 600V
Resolution:	0.1mV ÷ 1V
Basic accuracy:	±(1.0%rdg+3dgt)
Overload protection:	600Vrms
DC Current	
Measurement range:	0.01A ÷ 400A
Resolution:	0.01A ÷ 0.1A
Basic accuracy:	±(2.0%rdg+10dgt)
Overload protection:	600Arms
AC Current	
Measurement range:	0.01A ÷ 400A
Resolution:	0.01A ÷ 0.1A
Basic accuracy:	±(2.0%rdg+10dgt)
Overload protection:	600Arms
Resistance and continuity test	
Measurement range:	0.1Ω ÷ 40MΩ
Resolution:	0.1Ω ÷ 10kΩ
Basic accuracy:	±(1.0%rdg + 3dgt)
Buzzer:	<40Ω

GENERAL SPECIFICATIONS

Display:	LCD, 3 3/4 dgt, 4000 points
Conversion:	mean value
Power supply:	2x1.5V batteries type AAA LR03
Battery life:	approx 50 hours
AutoPowerOFF:	after 30 min of idleness
Max diameter of clamped cable:	30mm
Safety:	IEC/EN61010-1
Category of measurement:	CAT III 600V
Insulation:	double insulation
Pollution degree:	2
Max altitude:	2000m
Size (LxWxH):	205x64x39mm
Weight (included batteries):	280g

ACCESSORIES	Code
Standard	
- Couple of test leads	4413-2
- Carrying bag	B80
- Rubber clamp protection	
- Batteries	
- User manual	

HT4016
HP004016

HT7015 - HT7021
TRMS PROFESSIONAL AMPEROMETRIC CLAMPS AC/DC 600/1000A IN AUTORANGE

The **HT7015** and **HT7021** professional amperometric clamps perform mainly TRMS AC/DC current measurement, AC/DC voltage, resistance, frequency and continuity test. The meters are designed in compliance with IEC/EN61010-1 CAT IV 600V, CAT III 1000V and are ideal solution for measurements in both civil and industrial environments.

FUNCTIONS	HT7015	HT7021
TRMS measurements	•	•
DC voltage	600A	1000A
AC TRMS voltage	600V	750V
DC current	600A	1000A
AC TRMS current	600A	1000A
Resistance and continuity test	•	•
Frequency	•	•
Autorange	•	•
Data HOLD	•	•
MAX/MIN	•	•
PEAK	•	•
Backlight	•	•
Bargraph	•	•
AutoPowerOFF	•	•

GENERAL SPECIFICATIONS	
Display:	LCD 3¾ dgt, 4000 points
Conversion:	TRMS
Power supply:	1x9V battery type IEC 6F22
AutoPowerOFF:	after 30 min of idleness
Safety:	IEC/EN 61010-1
Category of measurement:	CAT III 600V *(HT7015)* CAT IV 600V, CAT III 1000V *(HT7021)*
Insulation:	double insulation
Pollution degree:	2
Max altitude:	2000m
Max diameter of clamped cable:	35mm (HT7015) 51mm *(HT7021)*
Size (LxWxH):	235x78x51mm *(HT7015)* 275x90x51mm *(HT7021)*
Weight (included batteries):	480g *(HT7015)* 520g *(HT7021)*

ACCESSORIES	Code
Standard	
- Couple of test leads	4413-2
- Batteries	
- Carrying bag	
- User manual	

TECHNICAL SPECIFICATIONS	HT7015	HT7021
DC Voltage		
Measurement range:	0.1V ÷ 600V	0.1V ÷ 1000V
Resolution:	0.1V ÷ 1V	0.1V ÷ 1V
Basic accuracy:	±(0.7%rdg + 2dgt)	±(0.7%rdg + 2dgt)
Overload protection:	600Vrms	1000VDC/750VAC
AC TRMS Voltage		
Measurement range:	0.1V ÷ 600V	0.1V ÷ 750V
Resolution:	0.1V ÷ 1V	0.1V ÷ 1V
Basic accuracy:	±(1.0%rdg + 5dgt)	±(1.0%rdg + 5dgt)
Overload protection:	600Vrms	1000VDC/750VAC
DC Current		
Measurement range:	0.1A ÷ 600A	0.1A ÷ 1000A
Resolution:	0.1A ÷ 1A	0.1A ÷ 1A
Basic accuracy:	±(1.5%rdg + 10dgt)	±(1.9%rdg + 2A)
Overload protection:	600Arms	1000Arms
AC TRMS Current		
Measurement range:	0.1A ÷ 600A	0.1A ÷ 1000A
Resolution:	0.1A ÷ 1A	0.1A ÷ 1A
Basic accuracy:	±(1.9%rdg + 5dgt)	±(1.9%rdg + 2A)
Overload protection:	600Arms	1000Arms
Resistance and continuity test		
Measurement range:	0.1Ω ÷ 400Ω	0.1Ω ÷ 400Ω
Resolution:	0.1Ω	0.1Ω
Basic accuracy:	±(1.0%rdg + 3dgt)	±(1.0%rdg + 3dgt)
Buzzer:	<30Ω	<30Ω
Overload protection:	600Vrms	600Vrms
Frequency with clamp		
Measurement range:	20Hz ÷ 400Hz	20Hz ÷ 400Hz
Resolution:	1Hz	1Hz
Basic accuracy:	±(0.1%rdg+ 2dgt)	±(0.1%rdg+ 2dgt)
Overload protection:	1000Arms	1000Arms

HT7021
HP007021

HT7015
HP007015

HT77
AC LEAKAGE CURRENT CLAMP

The **HT77** model is an amperometric clamp designed with special internal core to perform accurate AC measurement of very low current (from 10µA) as leakage currents which are common in civil and industrial electrical plants (ex: search for causes of anomalous trip out of RCD devices). The model is also useful for current measurement on first fault conditions in medical rooms. **HT77** is designed according to IEC/EN61010-1 safety standard in CAT IV 600V for current measurements and CAT III 600V for voltage measurements.

FUNCTIONS

- TRMS measurements
- AC TRMS voltage
- AC TRMS current
- Resistance and continuity test
- Frequency
- Data HOLD
- PEAK HOLD
- Manual range

TECHNICAL SPECIFICATIONS

AC TRMS Voltage	
Measurement range:	1V ÷ 750V
Resolution:	1V
Basic accuracy:	±(1.5%rdg + 5dgt)
Overload protection:	1000VDC/750Vrms
AC TRMS Current	
Measurement range:	10µA ÷ 90A
Resolution:	10µA ÷ 0.1A
Basic accuracy:	±(1.5%rdg + 5dgt)
Overload protection:	max 400Arms
Resistance and continuity test	
Measurement range:	0.1Ω ÷ 400Ω
Resolution:	0.1Ω
Basic accuracy:	±(1.0%rdg + 2dgt)
Buzzer:	<240Ω
Overload protection:	600Vrms
Frequency with clamp	
Measurement range:	0.001kHz ÷ 30kHz
Resolution:	0.001kHz ÷ 0.01kHz
Basic accuracy:	±(0.8%rdg+3dgt)
Overload protection:	600Vrms

GENERAL SPECIFICATIONS

Display:	LCD 3 3/4 dgt, 4000 points
Conversion:	TRMS
Power supply:	1x9V battery type IEC 6F22
Safety:	IEC/EN 61010-1
Category of measurement:	CAT IV 600V, CAT III 600V
Insulation:	double insulation
Pollution degree:	2
Max altitude:	2000m
Max diameter of clamped cable:	30mm
Size (LxWxH):	250x85x46mm
Weight (included battery):	400g

ACCESSORIES	Code
Standard	
- Couple of test leads	4312-2
- Battery	
- Carrying bag	
- User manual	

HT7022
TRMS AMPEROMETRIC CLAMP 600A AC/DC WITH POWER MEASUREMENT

The **HT7022** professional TRMS complete clamp is designed primarily to perform AC/DC current measurement up to 600A, AC/DC voltage up to 1000V CAT III 600V in compliance with the IEC/EN61010-1. The advanced technology of this meter permits the AC active power and power factor (Cosφ) measurements on single-phase systems, the THD% measurement, the phase sequence indication and the temperature measurement with type K probe. The HT7022 also performs measurement in AC+DC mode in order to detect direct components in generic alternate waveform. This is of great utility for detection of impulsive currents of welding machines, electric ovens and generic non-linear loads.

FUNCTIONS

- AC/DC, AC+DC TRMS current up to 600A
- AC/DC, AC+DC TRMS voltage up to 1000V
- AC active power and power factor Cosφ
- THD% calculation up to 25th order
- Phase sequence indication with 2-wire method
- Resistance and continuity test
- Frequency
- Temperature with type K probe
- Diode test
- Autorange
- Data HOLD
- MAX/MIN/PEAK
- INRUSH current mode
- Relative measurement
- Backlight
- AutoPowerOFF

TECHNICAL SPECIFICATIONS

DC Voltage	
Measurement range:	0.01V ÷ 1000V
Resolution:	0.01V ÷ 1V
Basic accuracy:	±(0.7%rdg + 5dgt)
Overload protection:	1000VACrms
AC, AC+ DC TRMS Voltage	
Measurement range:	0.01V ÷ 1000V
Resolution:	0.01V ÷ 1V
Basic accuracy:	±(1.0%rdg + 5dgt)
Overload protection:	1000VACrms
AC/DC, AC+DC TRMS Current	
Measurement range:	0.1A ÷ 600A
Resolution:	0.1A
Basic accuracy:	±(1.5%rdg + 5dgt)
Overload protection:	600Arms
AC active power	
Measurement range:	150W ÷ 600kW
Resolution:	1W ÷ 1kW
Basic accuracy:	±(2.5%rdg + 5dgt)
Overload protection:	1000VACrms / 600AACrms
Frequency with clamp and test leads	
Measurement range:	20Hz ÷ 4kHz
Resolution:	0.1Hz ÷ 0.001kHz
Basic accuracy:	±(0.1%rdg + 5dgt)
Overload protection:	1000VACrms / 600AACrms
Resistance and continuity test	
Measurement range:	0.1Ω ÷ 20kΩ
Resolution:	0.1Ω ÷ 0.01kΩ
Basic accuracy:	±(1.0%rdg + 5dgt
Buzzer:	<30Ω
Temperature with type K probe	
Measurement range:	-50°C ÷ 1000°C
Resolution:	0.1°C
Basic accuracy:	±(1.0%rdg + 3dgt)
Overload protection:	1000VACrms / 600VACrms

GENERAL SPECIFICATIONS

Display:	LCD, 3⁵⁄₆ dgt, 6000 points
Conversion:	TRMS
Power supply:	1x9V battery type IEC 6F22
Battery life:	approx 50 hours
AutoPowerOFF:	after 10 min of idleness
Max diameter of clamped cable:	35mm
Safety:	IEC/EN61010-1
Category of measurement:	CAT III 600V
Size (LxWxH):	235x78x51mm
Weight (included batteries):	380g

ACCESSORIES	Code
Standard	
- Couple of test leads	4413-2
- Type K bead probe + adapter	
- Battery	
- Carrying bag	
- User manual	

HT4020 - HT4022
TRMS AMPEROMETRIC CLAMP 400A AC WITH POWER MEASUREMENT

The **HT4020** and **HT4022** professional clamp meters perform TRMS AC Current measurement up to 400A, AC/DC voltage, frequency, resistance, continuity test, active, reactive and apparent power, power factor (cosφ) and energy measurements on single phase and/or three-phase balanced systems more than the phase sequence indication with 1-wire method. The HT4022 also performs the absolute/percentage voltage/current harmonics with the calculation of THD%. Each meter is designed in compliance with IEC/EN61010-1 in CAT III 600V and is an ideal solution to troubleshoot typical industrial equipments such as non-linear motors controlled frequency, networks of PC, etc.

FUNCTIONS	HT4020	HT4022
DC/AC TRMS voltage	•	•
AC TRMS current	•	•
Resistance and continuity test	•	•
Frequency with test leads and clamp	•	•
Active, reactive, apparent power	•	•
Active, reactive, apparent energy	•	•
Power factor (Cosφ)	•	•
V/ I harmonics up to 25th order and THD%		•
Phase sequence indication with 1-wire	•	•
Autorange	•	•
Data HOLD	•	•
MAX/MIN/AVG/PEAK	•	•
Backlight	•	•
AutoPowerOFF	•	•

GENERAL SPECIFICATIONS	
Display:	LCD 4 dgt, 10000 points
Conversion:	TRMS, 64 samples in 20ms
Power supply:	2x1.5V batteries type AAA LR03
AutoPowerOFF:	after 5 min of idleness
Safety:	IEC/EN 61010-1
Category of measurement:	CAT III 600V
Insulation:	double insulation
Pollution degree:	2
Max altitude:	2000m
Max diameter of clamped cable:	30mm
Size (LxWxH):	205x64x39mm
Weight (included batteries):	280g

ACCESSORIES	Code
Standard	
- Couple of test leads	4413-2
- Couple of alligator clips	
- Carrying bag	B80
- Rubber clamp protection	
- Batteries	
- ISO9000 calibration certificate	
- User manual	

HT4022
HP004022

TECHNICAL SPECIFICATIONS	HT4020	HT4022
DC Voltage		
Measurement range:	0.1V ÷ 600V	0.1V ÷ 600V
Resolution:	0.1V	0.1V
Basic accuracy:	±(1.0%rdg + 3dgt)	±(1.0%rdg + 3dgt)
Overload protection:	600Vrms	600Vrms
AC TRMS Voltage		
Measurement range:	1.6V ÷ 600V	1.6V ÷ 600V
Resolution:	0.1V	0.1V
Basic accuracy:	±(1.0%rdg + 3dgt)	±(1.0%rdg + 3dgt)
Overload protection:	600Vrms	600Vrms
AC TRMS Current		
Measurement range:	0.1A ÷ 400A	0.1A ÷ 400A
Resolution:	0.1A	0.1A
Basic accuracy:	±(1.0%rdg + 3dgt)	±(1.0%rdg + 3dgt)
Overload protection:	600Arms	600Arms
AC active, reactive, apparent power [kW, kVAR, kVA]		
Measurement range:	0.01 ÷ 1000	0.01 ÷ 1000
Resolution:	0.01 ÷ 0.1	0.01 ÷ 0.1
Basic accuracy:	±(3.5%rdg + 3dgt)	±(3.5%rdg + 3dgt)
Overload protection:	600V/600Arms	600V/600Arms
Power factor Cosφ		
Measurement range:	0.20 ÷ 1.00	0.20 ÷ 1.00
Resolution:	0.01	0.01
Basic accuracy:	±3°	±3°
Voltage/current harmonics		
Harmonic order		1 ÷ 25
Resolution [V, A]		0.1
Basic accuracy:		±(10%rdg + 5dgt)
Resistance and continuity test		
Measurement range:	0.1Ω ÷ 2kΩ	0.1Ω ÷ 2kΩ
Resolution:	0.1Ω ÷ 3Ω	0.1Ω ÷ 3Ω
Basic accuracy:	±(1.0%rdg + 5dgt)	±(1.0%rdg + 5dgt)
Buzzer:	<40Ω	<40Ω
Overload protection:	600Vrms	600Vrms
Frequency with clamp and test leads		
Measurement range:	40Hz ÷ 400Hz	40Hz ÷ 400Hz
Resolution:	0.1Hz	0.1Hz
Basic accuracy:	±(0.5%rdg+ 1dgt)	±(0.5%rdg+ 1dgt)
Overload protection:	600Vrms/600Arms	600Vrms/600Arms
Phase sequence indication with 1-wire method		
Voltage range:	50V ÷ 600V	50V ÷ 600V
Frequency range:	40Hz ÷ 69Hz	40Hz ÷ 69Hz
Overload protection:	600Vrms	600Vrms

INFRARED CAMERAS

FUNCTIONS	FLIR i5	FLIR i40	FLIR i50	HT1016	HT1160
	INFRARED CAMERAS				
Imaging and optical data					
Field of view (FOV)	17° x 17°	25° x 25°	20° x 20°	20° x 20°	20° x 16°
Thermal sensitivity	< 0.1°C (0.18°F)	< 0.1°C (0.18°F)	< 0.1°C (0.18°F)	0.3°C @ 30°C	0.15°C @ 21°C
Image frequency	9Hz	9Hz	9Hz	<9Hz	<9Hz
Focus / minimum focus distance	Fixed / 0.6m	Adjust / 0.12m	Adjus / 0.12m	Fixed / 1.5m	Adjus / 0.3m
IR detector specifications					
Detector type	FPA	FPA	FPA	Point matrix	FPA
Spectral range	7.5 - 13µm	7.5 - 13µm	7.5 - 13µm	8 - 14µm	8 - 14µm
IR resolution (pixel)	80 x 80	120 x 120	140 x 140	16 x 16	160 x 120
Measurement and image presentation					
Colour display with backlight	2.8" LCD	3.5" LCD	3.5" LCD	3.5" LCD	3.5" LCD
Image adjustment (contrast / brightness)	Automatic	Auto/Manual	Auto/Manual	Auto/Manual	Auto/Manual
Double illuminator lights		•	•		
Object temperature range	0°C ÷ 250°C	-20°C ÷ 350°C	-20°C ÷ 350°C	-10°C ÷ 300°C	-20°C ÷ 250°C
Accuracy	±2%rdg or ±2C°	±2%rdg or ±2C°	±2%rdg or ±2C°	n. a.	±2%rdg or ±2C°
Laser pointer (Class 2)		•	•	•	•
Available colour palettes	•(3)	•(3)	•(3)	•(3)	•(4)
Commands (emissivity adjust, reflected temperature)	•	•	•	•	•
Measurement cursors	1 fixed	1 fixed	1 fixed	2 adjustable	2 adjustable
Selection of measurements areas (Min/Max)		•	•		•
Integrated visible camera (resolution)		•(0.6Mpxel)	•(2.3Mpxel)		
FUSION Picture-in-Picture (PiP) feature		•	•		
Video output		MPEG4 via USB	MPEG4 via USB		
Measurement of temperature difference between two points				•	•
Hot/cold selection points on image					•
Image storage					
Image storage type	mini SD-card	micro SD-card	micro SD-card	mini SD-card	mini SD-card
Format file of storage image	JPG standard	JPG standard	JPG standard	Not standard	Not standard
Number of storage images (@ SD-card of 1Gbytes)	>1000	>1000 + JPG	>1000 + JPG	>1000	>1000
Thumbnail gallery of storage images		•	•		
Data communication interface					
PC connection	mini-USB	USB + mini-USB	USB + mini-USB		•
Power system					
Rechargeable internal battery	•(Li-ION)	•(Li-ION)	•(Li-ION)	•(Li-ION)	•(Li-ION)
Battery operating time (in continuous mode)	5 hours	5 hours	5 hours	6 hours	4 hours
AC operation with external adapter	•	•	•	•	•
Auto Power OFF	•	•	•	•	•
General specifications					
Mechanical protection level	IP43	IP54	IP54	IP43	IP43
Size (LxWxH) mm	223x79x83	235x81x175	235x81x175	230x120x90	230x120x110
Weight (included battery)	340g	600g	600g	700g	750g
PAGE	67	68	68	69	69

FLIR i5
DIGITAL LIGHTWEIGHT INFRARED CAMERA

The new **FLIR i5** is the smallest, lightest (340g – 0.75lb only!) and most affordable infrared camera on the market. It is incredibly easy to use and requires no former experience. It really is a matter of "point-shoot-detect" to obtain high-quality infrared images that will immediately give you the infrared information you need. The FLIR i5 has a bright color LCD display and is fully automatic regarding internal adjustments and needs no focus. FLIR i5 saves thermal images inside mini-SD cards with JPG standard format and also allows data transfer to PC via USB interface. The instrument is ideal for any practical application (identification of electrical problems, check of mechanical equipments, diagnosis on the structures of buildings, problems at hydraulics systems, forced ventilation HVAC, etc ...) where it is necessary to operate systems of prevention and protection.

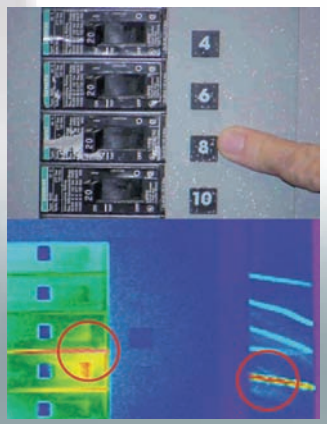
FUNCTIONS	
Object temperature range:	0°C ÷ 250°C
Thermal sensitivity:	<0.1C (0.18°F)
IR resolution:	80 x 80 pxl
Accuracy:	±2%rdg or 2°C
Field of view (FOV):	17° x 17°
Image frequency:	9Hz
Image focus:	Fixed
Minimal focus distance:	0.6m (2ft)
Emissivity adjustment:	0.1 ÷ 1.0
Function mode:	totally automatic adjust
Colour palettes:	3 (Rainbow, Ironbow, grey scale)
Image storage type:	mini SD-card
Format saved file:	JPG standard
Number of saved images:	>1000 @ SD-card 1Gbytes
PC interface:	mini-USB

GENERAL SPECIFICATIONS	
Display:	LCD, 2.8" with backlight
Power supply:	Li-ION rechargeable battery
Battery life:	5 hours (continuous mode)
Auto Power OFF:	Yes
Working temperature:	0°C ÷ 50°C
Storage temperature:	-40°C ÷ 70°C
Mechanical protection level:	IP43 (compliance to IEC60529)
Size (LxWxH):	223 x 79 x 83mm
Weight (included battery):	340g (0.75lb)

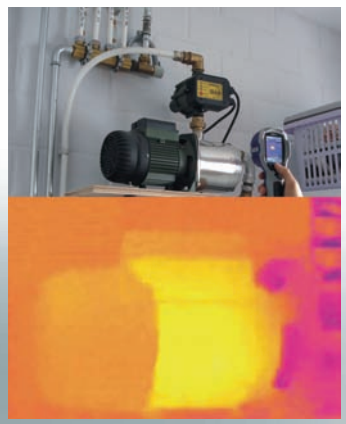
ACCESSORIES

- FLIR i5 camera
- FLIR QuickReport software
- USB cable for PC connection
- Mini SD-card 512Mbytes
- Li-ION rechargeable battery
- Supply charger with UE adapter
- Hand strap
- User manual

FLIRi5
HN000006



Locate electrical problem
You can clearly see the overheated connections on the thermal image



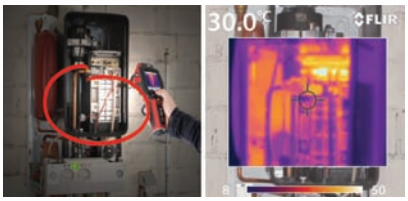
Check mechanical devices
The infrared image verifies that there is water in the pump cylinder and there is no danger of overheating the pump

FLIR i40 - FLIR i50
PROFESSIONAL INFRARED THERMAL IMAGER WITH INTEGRATED VISUAL CAMERA

The new **FLIR i40** and **FLIR i50** models are the latest products, innovative thermal imagers for spotting electrical problems, identifying mechanical issues, predictive maintenance and energy preservation. At only 600g it is so small and lightweight you can carry it with you anytime, at the same time it is packed with features like integrated visual camera, **the FUSION Picture-in-Picture (FPiP) feature** which takes infrared thermography to a new level by overlaying the rich detail of an infrared image over a hi-res visible light image in real-time, making it easier to identify critical problems more quickly and accurately. Difference between two models are the IR detector resolution (120x120pxl) for FLIR i40, (140x140pxl) for FLIR i50 and the resolution of visual camera (0.6Mpxel) for FLIR i40, (2.3Mpxel) for FLIR i50. The models offer an easy-to-access thumbnail gallery which helps you to quickly review and find your images. These models are the only infrared cameras in their class with a built-in illuminator lamp that ensures quality visual images regardless of job site lighting levels. Thanks to the reporting software included in the cameras it is also easy to create reports, analyze and document your findings.

FUNCTIONS	FLIR i40	FLIR i50
Object temperature range	-20÷350°C	-20÷350°C
Thermal sensitivity	< 0.1°C(0.18°F)	< 0.1°C(0.18°F)
Accuracy	±2%rdg o ±2°C	±2%rdg o ±2°C
IR resolution	120 x 120pxl	140 x 140pxl
Colour display	3.5" LCD	3.5" LCD
Integrated illuminator lamps	•	•
Field of view (FOV)	25°x 25°	25°x 25°
Image focus	Adjustable	Adjustable
Minimal focus distance	0.12m	0.12m
Class 2 laser pointer	•	•
Emissivity adjustment	•	•
Colour palettes	(3)	(3)
Function modes	Auto / Manual	Auto / Manual
Area selection (Max/Min)	•	•
Visual integrated camera	•	•
Visual camera resolution	0.6Mpxel	2.3Mpxel
FUSION FPIP feature	•	•
Image storage type	Micro SD Card	Micro SD Card
Format saved file	JPG standard	JPG standard
Number of saved images	>1000 @ 1GB	>1000 @ 1GB
Thumbnail image gallery	•	•
USB + mini USB interface	•	•
Output video (by USB)	MPEG4	MPEG4
Internal rechargeable battery	Li-ION	Li-ION
Mechanical protection level	IP54	IP54
Battery life (in continuous mode)	5 hours	5 hours
Size (LxWxH)	230x120x90mm	230x120x110mm
Weight (included battery)	0.7kg	0.75kg

Inspecting the transformer using the FUSION Picture-in-Picture (FPiP) function



Failure of a domestic gas boiler installation displayed using the FUSION PiP function. The FLIR i50 and i40 are the only IR cameras in their class with built in illuminating lights ensuring quality visual images regardless of the on site conditions

FLIR i40
HN000040

FLIR i50
HN000050

ACCESSORIES

Standard
- FLIR i40 / FLIR i50 camera
- Li-ION rechargeable battery 2200mAh
- Supply charger with UE adapter 240V AC/ 12V DC
- Supply cord
- Micro SD-card 1Gbytes
- USB cable
- FLIR QuickReport report
- Lens cover
- Hand strap
- Carrying case
- User manual

Optional
- Pouch
- Li-ION rechargeable battery 2200mAh
- Supply charger with UE adapter 240V AC/ 12V DC
- Car adapter kit, 12V, 1.2m cable
- 2-way battery charger

HT1016 - HT1160
INFRARED DIGITAL CAMERA FOR TEMPERATURE MEASUREMENTS AND SAVING OF THERMAL IMAGES

The requirements of service maintenance operation in industrial installations to perform predictive diagnostics actions in order to understand the reasons of each problems on generic apparatus involve always more verifiers and technical engineers to the use of instruments like digital thermal imagers. The principal aim of these meters is to detect the infrared radiations emitted by each kind of material which is interested at dangerous heating caused by high electrical currents and/or damaged mechanical parts expressed by a temperature measurement. **HT1016** and **HT1160** models offer a professional performance level together to a very high flexibility and a easy to use manipulation. Both models are designed with a wide LCD colour display and a laser pointer to save an accurate thermal image as a common digital camera in order to fix the areas at "warm" and "cold" temperature expressed by the selectable colour palettes. Each saved image can be transferred to PC for final analysis and for creation of a customized report. The **HT1160** model, thanks to its 160x120pxl output resolution, permits a very good definition of the saved thermal images and is the ideal solution for any kind of application.

FUNCTIONS	HT1016	HT1160
Measurement range	-10 ÷ 300°C	-10 ÷ 250°C
Sensitivity	0.3°C@ 30°C	0.15°C@ 21°C
Output resolution	16x16 pxl	160x120 pxl
TFT display with backlight	•	•
Field of view	20° x 20°	20° x 10°
D:S ratio	45:1	458:1
Image focus	Fixed	Adjustable
Minimum focus distance	1.5m	0.3m
Laser pointer	•	•
Selection °C, °F, °K	•	•
Emissivity adjustable	•	•
Function modes	Auto / Manual	Auto / Manual
Digital zoom		•
Colour palettes	•(3)	•(4)
Saved data mode	SD Flash card	SD Flash card
SD card sizes	128MB ÷ 2GB	128MB ÷ 2GB
Number of saved images	1000 @ 128MB	1000 @ 128MB
USB interface		•
Laser pointer standard	EN60825-1	EN60825-1
Power supply	Li-ION rechargeable battery	Li-ION rechargeable battery
Battery autonomy	6 hours	4 hours
Size (LxWxH)	230x120x90	230x120x110
Weight (include battery)	0.7kg	0.75kg

ACCESSORIES HT1016

- Protection lens
- Li-ION rechargeable battery
- Power supply adapter 100-240V / 12V
- SD Flash card (fitted)
- SD Flash card reader compliance to Win2000/XP/Vista
- USB cable for SD Flash card reader
- ThermoView HT1016 Windows software
- Full Report Writer Windows software
- User manual on CD-ROM
- Lanyard
- Carrying case

ACCESSORIES HT1160

- Protection lens
- Li-ION rechargeable battery
- Power supply adapter 100-240V / 12V
- SD Flash card (fitted)
- SD Flash card reader compliance to Win2000/XP/Vista
- USB cable for SD Flash card reader
- USB cable for PC interface
- Rubber holster protection
- ThermoView HT1160 Windows software
- Full Report Writer Windows software
- User manual on CD-ROM
- Lanyard
- Carrying case

Overheated lines

HT300 - HT2235N - HT3301 - HT3310
INFRARED THERMOMETER AND WITH K/J PROBES

The **HT300**, **HT2235N**, **HT3301** and **HT3310** models are portable digital thermometers which can perform contact and infrared temperature measurements in a very easy way. The models HT2235N and HT3301 can also save the measured results.

FUNCTIONS	HT300	HT2235N	HT3301	HT3310
Temperature with type K/J probe	•	•(only K)	•(only K)	
Infrared temperature measurement		•	•	•
Measurement range with type K/J probe	-200°C÷1370°C (type K) -200°C÷1050°C (type J)	-100°C ÷ 1333°C (-148°F ÷ 1999°F)	-50°C ÷ 1370°C (-58°F ÷ 2498°F)	
Measurement range infrared mode		-20 ÷ 500°C (-4°F ÷ 932°F)	-50 ÷ 1050°C (-58°F ÷ 1922°F)	-50 ÷ 1000°C (-58°F ÷ 1832°F)
Resolution with type K/J probe	0.1°C / 0.1°F	0.1°C / 0.1°F	0.1°C / 0.1°F	0.1°C / 0.1°F
Resolution infrared mode		0.1°C / 0.1°F	0.1°C / 0.1°F	
Accuracy with type K/J probe (only meter)	±(0.05%rdg + 0.7°C) ±(0.05%rdg + 1.4°F)	±(0.1%rdg + 1°C) ±(0.1%rdg + 2°F)	±(1.5%rdg + 1°C) ±(1.5%rdg + 2°F)	
Accuracy infrared mode		±(2.0%rdg + 2°C)	±(1.5%rdg + 2°C)	±(1.5%rdg + 2°C)
Selection °'a1C / °'a1F units	•	•	•	•
Distance / Spot ratio for infrared mode		8:1	30:1	50:1
Class 2 laser pointer		•	•	•
Emissivity adjustment		•	•	•
Setting of thresholds alarms on measurements		•	•	•
Memory		(50 locations)	(20 locations)	
Backlight LCD display		•	•	•
MAX/MIN	•	•	•	•
MAX/MN/DIF/AVG			•	•
Data HOLD	•	•	•	•
Relative measurement	•			
Power supply	1x9V battery 6F22	1x9V battery 6F22	1x9V battery 6F22	1x9V battery 6F22
AutoPowerOFF	•	•	•	•
Size (LxWxH)	130 x 56 x 38 mm	170 x 52 x 38 mm	170 x 56 x 23 mm	100 x 56 x 23 mm
Weight (included battery)	170g	180g	290g	290g

ACCESSORIES	HT300	HT2235N	HT3301	HT3310
Standard				
- Type K bead probe	•		•	
- Carrying bag	•	•	•	•
- Battery	•	•	•	•
- User manual	•	•	•	•
Optional				
- Type K probes *(see page 77)*	•	•	•	

HT950 - HT307 - HT204
DIGITAL PANEL TEMPERATURE CONTROLLER FOR MV/LV TRANSFORMERS, LUXMETER AND SOLAR POWER METER

HT950N controller is designed to monitor the temperature inside internal circuits of MV/LV oil or air transformers in order to prevent possible breakaging or excessive overheating. The model, built in (96 x 96 mm) panel configuration, receives up to 4 input signals from Pt100 DIN 3-wire and performs temperature measurement up to 200°C. The **HT307** and **HT204** models, with silicon photodiode sensors, are respectively a digital luxmeter to measure up to 200kLux lighting and a digital solar power meter to measure solar radiation up to 2000W/m^2 very useful in industrial photovoltaic installation for the evaluation of the of solar power incident on the panels under test.

FUNCTIONS HT950N

Temperature range from 0°C to 200°C
4 x 3-wire DIN Pt100 DIN available inputs
3 x free contact 5A/250V output relais
4 temperature alarms setting thresholds
MAX temperature recorded on each input signal
Automatic adjustment of Pt100 cable resistance
LED indications and red LED displays
Dust protection keyboard
AC/DC external power supply

FUNCTIONS HT307

Measurement range	0.01 ÷ 200kLux
	0.01 ÷ 20fc
Resolution	0.01Lux ÷ 100Lux
	0.01 ÷ 10fc
Accuracy	±3%rdg
Reference standard	Class A, JIS C 1609:1993
Unit selection	Lux/Fc
Adjustment	Manual with trimmer
Manual range selection	•
Spectral response correction	•
Data HOLD, MAX/MIN	•
DC analogical output	0.001mV ÷ 10mV

FUNCTIONS HT204

Measurement range	1 ÷ 1999W/m^2
	1 ÷ 634 BTU/(ft^2*h)
Resolution	1W/m2
	1BTU/(ft^2*h)
Accuracy	> between 10 W/m^2 and 5%rdg
	> between 1BTU/(ft^2*h) and 5%rdg
Unit selection	W/m^2 and BTU/(ft^2*h)
Adjustment	Manual with trimmer
Manual range selection	•
Data HOLD / MAX/MIN	•

ACCESSORIES HT950N

- 8 connectors for Pt100, relais outputs and power supply
- 1 filter on supply cord
- 2 fixing hooks and screws
- User manual

ACCESSORIES HT307

- Jack for DC analogical output connection
- Screwdriver for trimmer adjustment
- Carrying bag
- Battery
- User manual

ACCESSORIES HT204

- Carrying bag
- Battery
- User manual

SC-20C - HT154
TYPE 1 AND TYPE 2 PROFESSIONAL SOUND LEVEL METERS

SC-20c model is a compact, strong and reliable sound level meter with a single scale, which means without scale pre-setting, making it accurate and easy to use. Thanks to a powerful microprocessor it is possible to effect simultaneously multiple functions. Each function and its peak can be looked up once the process has been completed making this a very powerful instrument. This model perform any test according to IEC 61672 and IEC804 Type 1 standards The instrument is provided with software for connection to PC permitting to store measurements and display them under graphical, numerical, statistical form etc. **HT154** model is a portable digital Type 2 sound level meter suitable for performing of common inspection controls on environmental noise, verify of sound levels, acoustic degree etc. The instrument is extremely easy to use thanks to wide LCD display and for parameters control with only 5 functions keys. HT154 is supplied with a portable calibrator for any control before normal measurements and is fitted inside a practical carrying bag with all accessory for measurements.

FUNCTIONS	HT154	SC-20C
Sound level meter category	Type 2	Type 1
Measurement range	30 ÷ 130dB	20 ÷ 140dB
Sound Pressure Level (SPL) measure	•	•
Leq integration with 10,50,90 percentiles		•
A and C frequency weighting	•	•
FAST / SLOW / PEAK integration		•
MAX / MIN values of SPL	•	•
1/2 inches condenser microphone	•	•
AC and DC analogical output (max 1V)	•	•
Manual calibration with trimmer	•	•
Portable calibrator included	•	•
Internal memory		•
Recording operation		•
RS-232 serial interface		•

GENERAL SPECIFICATIONS	
Display	LCD, 3 1/2 digits *(HT154)* LCD, 4 digits *(SC-20C)*
Power supply	1x9V batteria tipo IEC 6F22
Reference standards:	IEC 61672 type1 *(SC-20C)* IEC/EN60804 type1 *(SC-20C)* IEC 61672 type2 *(HT154)*
Size (LxWxH)	301x82x19mm *(SC-20C)* 2890x80x32mm *(HT154)*
Weight (included battery)	600g *(SC-20C)* 300g *(HT154)*

ACCESSORIES SC-20C

- CB-5 portable calibrator with included battery
- RS-232 serial cable
- Soft carrying bag for sound level meter
- Screwdriver for sound level meter manual calibration
- Wind shield
- Carrying case
- Sound level meter CE declaration of conformity
- Portable calibrator CE declaration of conformity
- Sound level meter certificate of calibration
- Portable calibrator certificate of calibration
- Battery
- Sound level meter user manual
- Portable calibrator user manual

ACCESSORIES HT154

- HT150 portable calibrator with included battery
- Wind shield
- Screwdriver for sound level meter manual calibration
- Jack for AC/DC analogical output
- Carrying case
- Battery
- Sound level meter user manual
- Portable calibrator user manual

SC-20C
HN000020

HT154
HN000154

HT167 - M4000 - HT2234N
DIGITAL THERMOHYGROMETER, THERMOANEMOMETER AND TACHOMETER

HT167 include the thermometer and hygrometer features in a only meter. More than real time measurements, the meter also performs recording operation and can be connected to PC via RS-232 for saved data transfer. **M4000** is a multifunction analyzer of environmental parameters as air temperature/humidity, wind speed, capacity, air volume, enthalpy. It is particularly indicated for HVAC plants verifies. **HT2234N** is a digital tachometer to perform RPM measurements of rotating parts (disks, motor trees, etc..) both on contact and without contact by using of a laser emission ray transmitted and received from the object under measurement.

FUNCTIONS	HT167	M4000	HT2234N
Air temperature measurement in °C / °F	•	•	
Air volume measurement (m^3/s) and enthalpy (kW)		•	
Relative humidity measurement (%RH)	•	•	
Wind speed measurement (m/s)		•	
RPM with and without contact measurement			•
Counter of events			•
Laser pointer			•
MAX / MN / HOLD	•		•
Real time recordings	•		
Internal memory for saving date	•		
RS-232 serial interface	•		
AutoPowerOFF	•	•	•

GENERAL SPECIFICATIONS HT167
- Temp. range: -20°C ÷ 60°C (-4°F ÷ 140°F)
- Humidity range: 0 ÷100%RH
- Resolution: 0.1°C (0.1°F) / 0.1%RH
- Temperature accuracy: ÷0.7°C / 0.1°F
- Humidity accuracy: ÷2.5%rdg (at 25°C)
- Response time: 40s (°C) / 75s (%RH)
- Display: LCD, 4 digits
- Data HOLD
- MAX/MIN
- Integration period: 160min
- Memory: ca 16000 locations
- RS-232 serial interface
- AutoPowerOFF: after 30min
- Power supply: 1x9V battery type IEC6F22
- Size (LxWxH): 186x64x30mm
- Weight (included battery): 320g
Standard accessories
- Carrying bag
- Battery
- Software + RS-232 serial cable
- User manual

GENERAL SPECIFICATIONS M4000
- Temp. range: -5°C ÷ 65°C (23°F ÷149°F)
- Humidity range: 10 ÷ 95%RH
- Wind speed range: 0.3 ÷15m/s
- Resolution: 0.6°C / 0.4%RH / 0.1m/s
- Temperature accuracy: 1°C / 2°F
- Humidity accuracy: 3.0%rdg
- Wind speed accuracy: (3%rdg+1dgt)
- Display: LCD, 4 digits
- AutoPowerOFF: after 10min
- Power supply: 1x9V battery type IEC6F22
- Size (LxWxH): 198x90x40mm
- Probe dimensions: diameter 73mm
- Weight (included battery): 260g
Standard accessories
- Carrying case
- ISO9000 certificate of calibration
- Battery
- User manual

GENERAL SPECIFICATIONS HT2234N
- Without contact speed range: 10.00 ÷ 99999 RPM
- Contact speed range: 20.00 ÷ 29999 RPM
- Resolution: 0.01 ÷ 1RPM
- Accuracy: (0.04%rdg + 2dgt)
- Events counter range: 0 ÷ 99999
- Response time: 0.7s (>60RPM)
- Distance from object: 50 ÷ 300mm
- Display: LCD, 5 dgt, 99999 points
- AutoPowerOFF: after 30min
- Data HOLD
- MAX/MIN
- Power supply: 4x1.5V batteries AA LR06
- Size (LxWxH): 172x63x36mm
- Weight (included batteries): 190g
Standard accessories
- Mechanical adapter + fixing screw
- Rubber part
- Rubber terminals of various shape
- Reflecting tape
- Carrying bag
- Batteries+user manual

OPTIONAL ACCESSORIES

MULTIFUNCTION METERS MODELS	 HT96U	 HT97U	 HT98U	 HP30C2	 HP30C3	 HTFLEX 1000	 HTFLEX 3003	 HTFLEX 33	 HT4003
GSC53N	•	•	•(AC)	•	•	•	•	•(S)	
GSC57	•	•	•(AC)	•	•	•	•		
SIRIUS89N	•	•	•(AC)	•	•			•(S)	
SIRIUS87									
COMBI420	•	•	•(AC)	•	•				
COMBI419	•	•	•(AC)	•	•				
SPEED418									
M72	•(N)	•(N)	•(N)	•(N)	•(N)				•
M73	•(N)	•(N)	•(N)	•(N)	•(N)				•
M74	•(N)	•(N)	•(N)	•(N)	•(N)				•
M75	•(N)	•(N)	•(N)	•(N)	•(N)				•(S)
ISO410									
EQUITEST5070									
GEO416									
FULLTEST4058N									
FULLTEST4050									
SOLAR300	•	•	•	•	•	•	•	•	
SOLAR200									
PQA823	•	•	•	•	•	•	•	•(S)	
PQA824	•	•	•	•	•	•	•	•(S)	
VEGA76	•	•	•(AC)	•	•	•	•	•(S)	

*(N) = with **NOCANBA** optional accessory ; (AC) = only for AC current; (S) = Provided as a standard accessory*
(*) = Transducer clamp not for AC active power measurement
(**) = Upgrading available in 2009 – Contact export department of HT ITALIA

OPTIONAL ACCESSORIES

CLAMPS AND MULTIMETERS MODELS	 T10	 TK107	 TK108	 TK109	 TK110	 TK111
HT21						
HT321, HT322, HT326, HT327	•(HT322)	•(HT322)	•(HT322)	•(HT322)	•(HT322)	•(HT322)
HT32, HT37, HT39						
HT570, HT576, HT579		•(HT579)	•(HT579)	•(HT579)	•(HT579)	•(HT579)
HT710, HT712						
HT4012, HT4014, HT4016, HT4020, HT4022						
HT7010, HT7011, HT7012, HT7015, HT7016, HT7019, HT7021, HT7022		•(HT7022)	•(HT7022)	•(HT7022)	•(HT7022)	•(HT7022)
HT7602						
HT77, HT79						

(S) = Provided as a standard accessory

OPTIONAL ACCESSORIES									OPTIONAL PROBES	
HT4004	**HT4005N**	**IMP57**	**HT903**	**PR400**	**TOPVIEW 2006**	**TOPVIEW**	**CN0050**	**SP-0400**	**HT52/05**	**HT53/05**
•(*) (AC)	•	•	•		•(S)		•		•	•
•(*) (AC)		•	•		•(S)		•		•	•
•(*) (AC)	•	•			•(S)		•		•	•
		•			•(S)		•			
•(*) (AC)	•	•		•	•			•	•	•
•	•	•		•	•			•		
		•		•	•			•		
•(N)	•(N)									
•(N)	•(N)									
•(N)	•(N)									
•(N)	•(N)									
				•	•			•		
						•				
					•			•		
		•								
		•(**)								
•	•		•		•(S)					
		•		•	•			•		
•	•		•		•(S)					
•	•		•		•(S)					
•(AC)			•		•(S)		•			

OPTIONAL ACCESSORIES									
B80	**CP-05**	**SW-39**	**4312-2**	**4413-2**	**KIT4000A**	**P7602**	**P710EU**	**P711EU**	
•(S)					•(S)				
•(S)				•(S)					
•		•(HT39)		•(S)					
•	•(HT576)				•(S)				
							•(S)	•(S)	
•(S)				•(S)					
				•(S)					
						•(S)			
			•						

A complete list of accessories for any measuring requirement. The standard and flexible clamps (except for HTFLEX33) the illuminance Lux and Temperature/Humidity probes have a 1VAC and/or DC maximum amplitude output voltage signal. These accessories suit all types of safety testers, multimeters, recorders and data loggers.

HP30C2 / HP30C3
AC standard clamps
Range: 200 / 2000A (HP30C2)
3000A (HP30C3)
Basic accuracy: ±0.5%rdg
Output signal: 1VAC
Category of measure: CAT III 600V
Length of output cable: 2m
Max clamping cable diameter: 70mm
Output connector: Hypertac

HT4003
AC standard clamp
Basic accuracy: ±1.5%rdg +0.5A
Output signal: 400mVAC
Category of measure: CAT III 600V
Max clamping cable diameter: 30mm
Output connector: safety bananas
(clamp not for power measurement)

HT4004
AC/DC standard clamp
Selectable range: 10A, 100A
DC basic accuracy: ± 1.5%rdg +0.01A
AC basic accuracy: ±2.0%rdg +0.5A
Output signal: 1VAC/DC
Power supply: 2x1.5V battery AAA LR03
Category of measure: CAT III 600V
Length of output cable: 2m
Max clamping cable diameter: 30mm
Output connector: Hypertac

HT4005N
5-100A AC standard clamp
Selectable range: 5A, 100A
Basic accuracy: <2%rdg +0.5A
Output signal: 1VAC
Category of measure: CAT III 600V
Length of output cable: 2m
Max clamping cable diameter: 20mm
Output connector: Hypertac

HT96U / HT97U
AC standard clamps
Selectable range: 1,100,1000A *(HT96U)*
10,100,1000A *(HT97U)*
Basic accuracy: 1.0%rdg
Output signal: 1VAC
Category of measure: CAT III 600V
Length of output cable: 2m
Max clamping cable diameter: 54mm
Output connector: Hypertac

HT98U
AC/DC 1000A standard clamp
Basic accuracy: ±(1.0%rdg +0.5A)
Output signal: 1VAC/DC
Power supply: 1x9V battery IEC 6F22
Battery life: approx 75 hours
Category of measure: CAT III 600V
Length of output cable: 2m
Max clamping cable diameter: 52mm
Output connector: Hypertac

HTFLEX3003 / HTFLEX1000 flexible clamps
HTFLEX3003 / HTFLEX1000 is a set of 3 flexible clamps for AC current measurement based on Rogowski method up to 3000A / 1000A
Range: 300 / 3000A *(HTFLEX3003)*
1000A *(HTFLEX1000)*
Measure range: 1.5A ÷ 3000A *(HTFLEX3003)*
Measure range: 5A ÷ 1000A *(HTFLEX1000)*
Basic accuracy: ±1.0%rdg
Output signal: 1VAC
Power supply: 2x1.5V battery type IEC AA LR06
Length of flexible head: 610 / 450mm
Category of measure: CAT III 1000V
Max clamping cable diameter: 174mm / 154mm

IMP57
Accessory for Line/Loop P-P, P-N, P-PE impedance measurement with high resolution (0.1mΩ) and test current of 200A

HT52/05
Air Temperature/Humidity probe

TEMPERATURE
Range: -20 ÷ 60°C
4 ÷ 140°F
Accuracy: ±0.7°C, 1.4°F
Sensor type: capacitive

HUMIDITY
Range: 0 ÷ 100%RH
Accuracy: ±3%rdg at 25°C
Sensor type: capacitive
Output connector: Hypertac

HT903
Case 3x1-5A/1V for connection to external CTs with 1A or 5A secondary outputs

A0050
AC/DC network adapter
230VAC/12VDC

A0053
AC/DC network adapter
110VAC/12VDC

HTFLEX33 flexible clamp
HTFLEX33 is a flexible clamps for AC current measurement based on Rogowski method up to 3000A without external power supply
Range: 3000A
Output signal: max 85mV AC
Measure range: 5A ÷ 3000A
Basic accuracy: ±1.0%rdg
Length of flexible head: 610mm
Category of measure: CAT III 1000V
Max clamping cable diameter: 174mm

HT53/05
Class A luxmeter probe
Sensor type: silicon photodiode
Range: 20 / 2000 / 200000 lux
Response time: <100ms
Output signal:
20 lux: 0.01lux → 1mV
2000 lux: 1lux → 1mV
20000 lux: 10lux → 1mV
Accuracy: ±3%rdg
Output connector: Hypertac

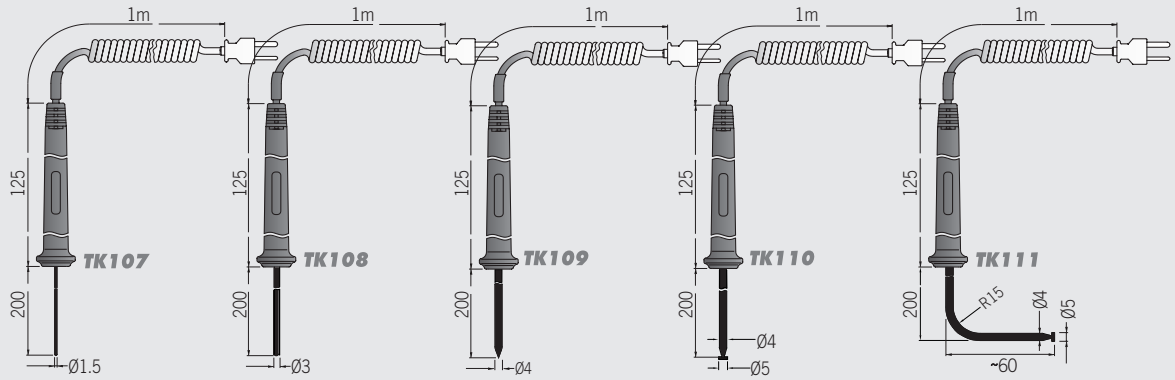
PR400
Remote probe
START/STOP key for start and stop measurements without pressing function key on meter
Performs measures of:
Continuity, Insulation, RCD, Loop, Phase sequence indication

CN0050
Hards-free kit

SP-0400
Hards-free kit

OPTIONAL TEMPERATURE PROBES

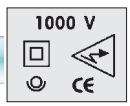
Probe code	TK107	TK108	TK109	TK110	TK111
Application:	Temperature of air and gas	Inner temperature of semisolid substances	Inner temperature of liquid substances	Temperature of surfaces	Temperature of surfaces with 90° tip
Probe type	Type “K”	Type “K”	Type “K”	Type “K”	Type “K”
Range of temperature	- 40 ÷ 800°C	- 40 ÷ 800°C	- 40 ÷ 800°C	- 40 ÷ 400°C	- 40 ÷ 400°C
Response time	4s	4s	4s	4s	4s
Agguracy (at 100°C)	±2.2 rdg (according to IEC 584)	±2.2 lrdg (according to IEC 584)	±2.2 rdg (according to IEC 584)	±2.2 rdg (according to IEC 584)	±2.2 rdg (according to IEC 584)



OPTIONAL GENERIC ACCESSORIES COMPLIANCE WITH IEC/EN61010-1

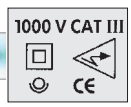
Code 6009-IEC

Safety hard alligator clip (20A) for each 4mm banana test leads



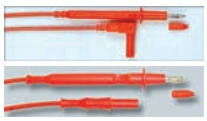
Code 6007-IEC

Safety flexible alligator clip (6A) for each 4mm banana test leads



Code 4413-2
Code 4312-2

Couple of test leads red/black CAT III 1000V with 90° connector
Couple of test leads red/black CAT III 1000V



Code 425

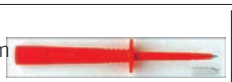
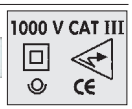
Kit of test leads composed by:
2 measurement cables 4mm diameter
2 test leads
2 small clips

Code 404-IEC#

CAT III 1000V safety test lead 4mm banana connector
available colours: N=black, R=red, V=green, B=blue

Code 402-IEC#

CAT III 1000V safety test lead 4mm banana connector
available colours: N=black, R=red

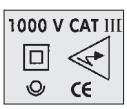



Code 1066-IEC#

CAT III 1000V connector for cables 4mm banana connectors
available colours: N=black, R=red

Code 5004-IEC#

CAT III 1000V safety alligator clip max 20A
available colours: N=black, R=red, V=green, B=blue



Code 44700

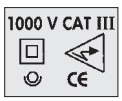
Basic kit for scope meters composed by:
2 cables 4mm diameter
2 clips
2 test leads
2 alligator clips
2 M-F adapters
1 BNC adapter with double banana
2 micro clips
1 probe 150MHz (x1 / x10)

Code 44100

Basic kit for digital multimeters composed by:
2 cables 4mm diameter
2 alligator clips 20A
2 test leads
2 special clips
2 clips

Code 4717-S-IEC-100#

CAT III 1000V safety test leads with retractable protection
available colours: N=black, R=red



ABNACON

Adapter Hypertac male – safety banana female for connection of transducer probes to power quality analyzers

NOCANBA

Adapter Hypertac female – safety banana male for connection of transducer probes to multimeters or data loggers

T10

Adapter for connection of type K probes to multimeters

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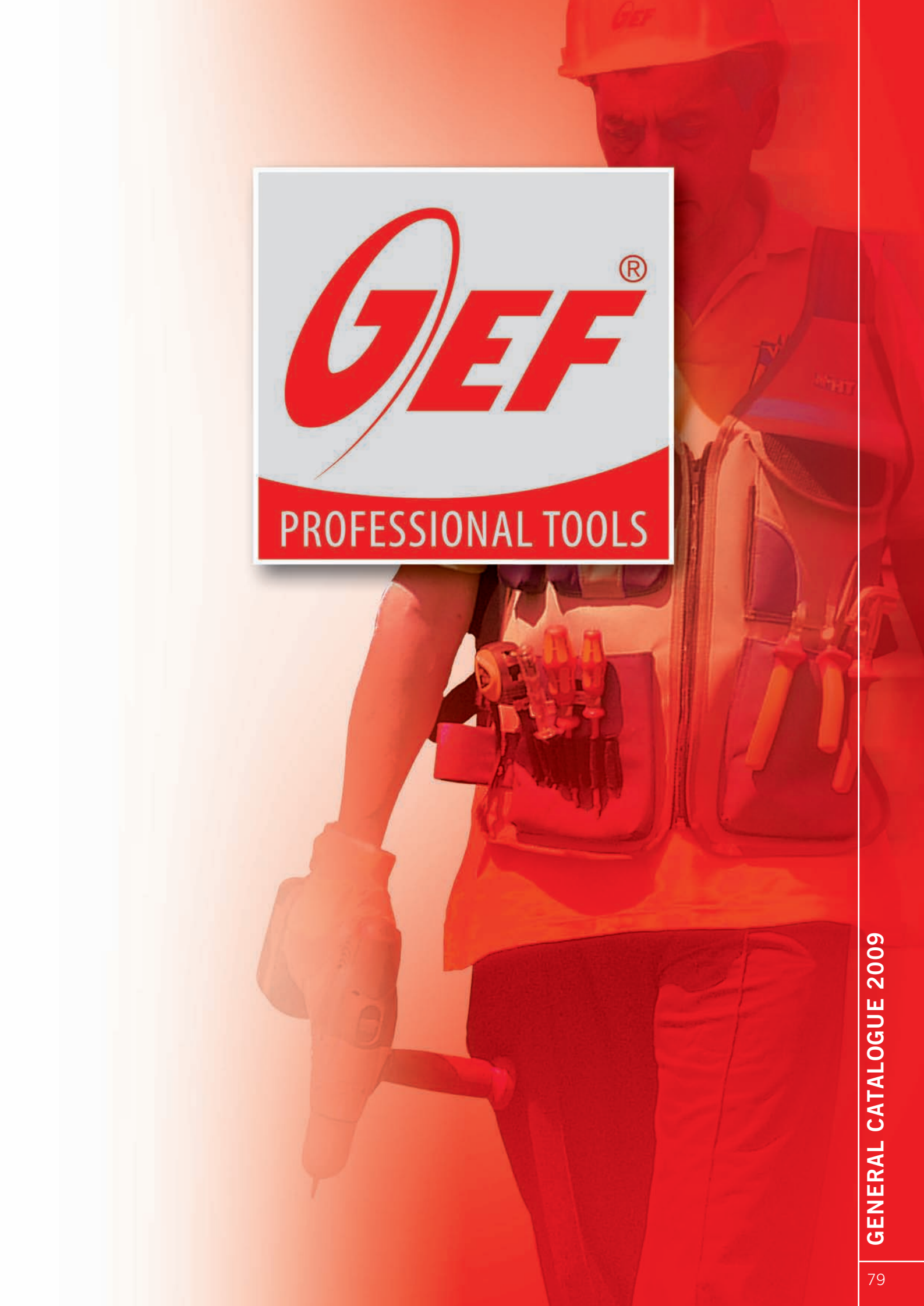
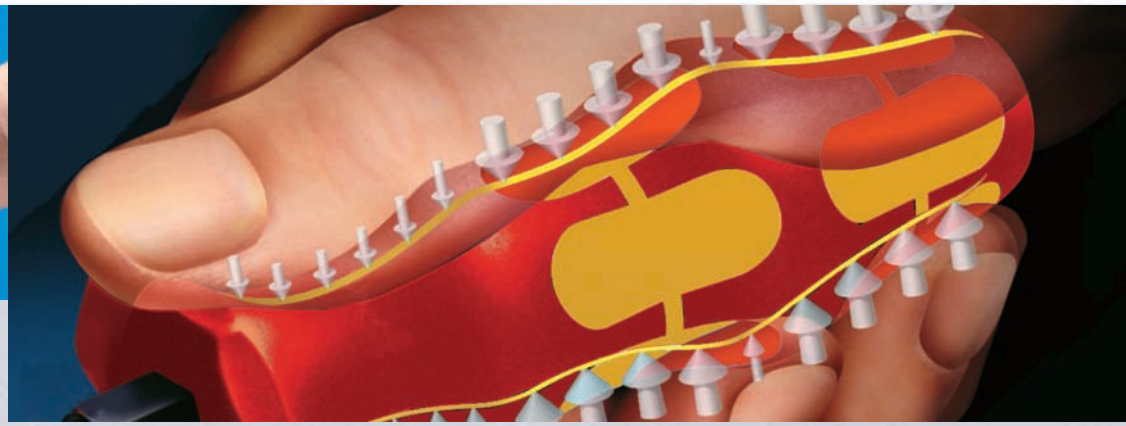

PROFESSIONAL TOOLS

Kraftform® handle
The shape that has been built by hand

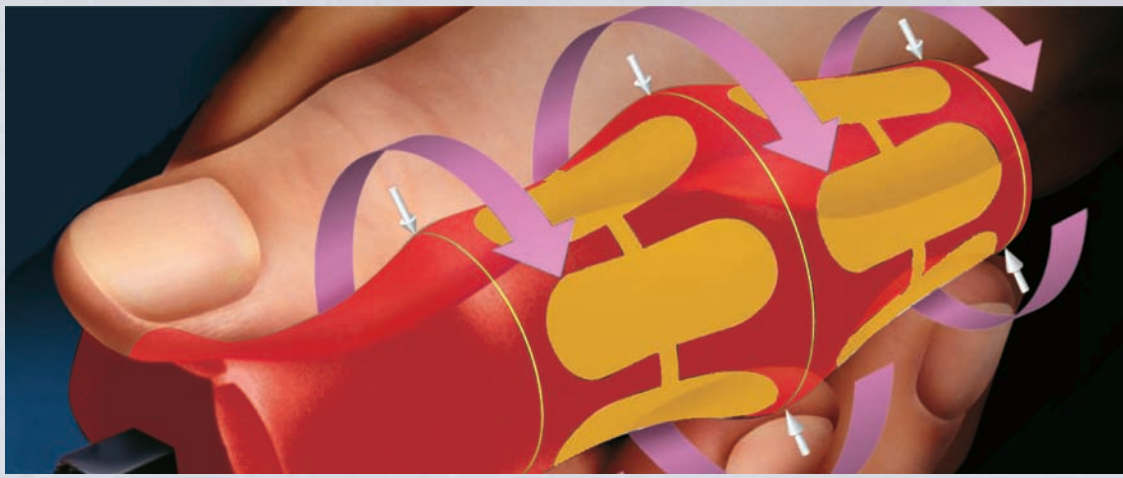


The large contact zone that provides a particularly large amount of friction with the soft zones facilitates high torque transfer when gripping the tool.

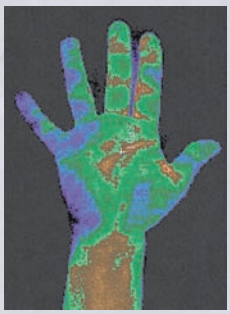
The basic design principle for the original shape of the Kraftform® handle (the hand determines the shape of the handle) is still right for today.

The large diameter fills the palm.
The weight of the handle lying in the palm and its shape determine the level of torque. Large handle diameters facilitate high torque transfer.

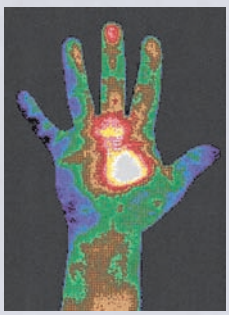
Wide grooves support the muscles of the hand.
Wide, gently curved grooves provide optimal contact zones for the muscles of the hand and fingers. By supporting the particularly strong muscles of the index and middle fingers in soft elastomer grooves they are able to unfold their strength fully.



Virtually friction free contact with the hard zones facilitates high speed action during repositioning



Good handle: minimal stress

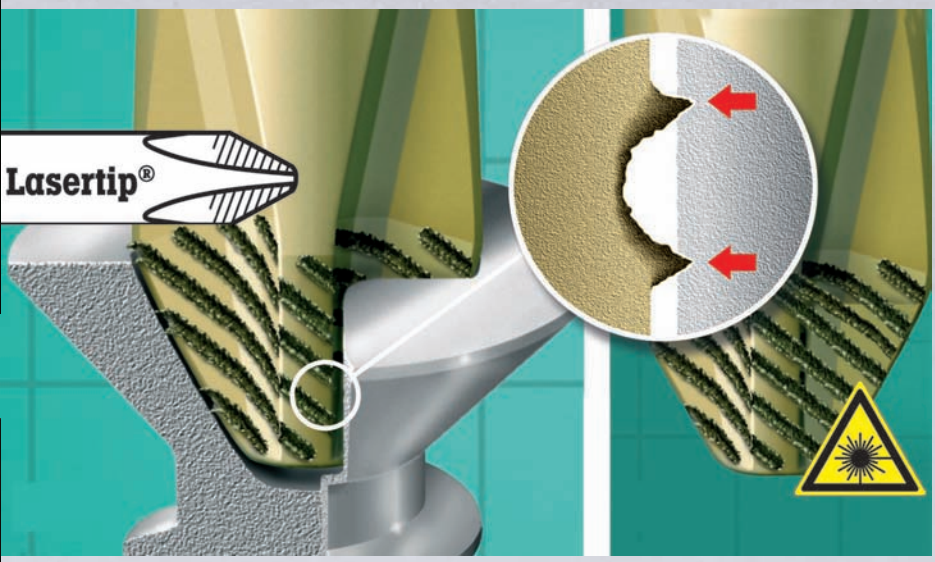


Bad handle: severe stress

A thermal imaging camera shows the difference: the white/red zones indicate areas of high stress.

Lasertip® blade
Lasertip® for greater safety

The tip Lasertip® joins perfectly with the head of the screw so that the blade does not slide from the screw.



A narrowly focused laser creates a sharp edged surface structure. This material mix is extremely resistant to wear. The laser treatment hardens the thread paths up to 1,000 HV 0.3

The Lasertip® blade increases productivity. Advantages at a glance

Greater safety:
Greater safety as a result of less slipping leading to less damage to screws and delicate surfaces. Lower risk of injury

More power:
More “bite” in the screw facilitates higher torque transfer.

More speed:
No need to re-set the screwdriver. Significant reduction of contact pressure

Longer life:
Laser treatment of the drive end extends the service life of the tool

Lasertip® significantly reduces the amount of required contact pressure. This amazing effect is the result of Lasertip® treatment of the tip. An extremely rough surface hardened up to 1,000 Vickers is created so that the drive end literally “bites” into the screw head. This prevents time consuming and usually expensive, boring and avoids injuries and damage to surfaces caused by slipping out of the screw head.

GEF innovative screwdrivers with Kraftform® handle and Lasertip® blade

Screwdrivers with Kraftform® handle and Lasertip® blade

160 i VDE insulated screwdriver for slotted screws Kratform® Plus

NEW

Application: for slotted screws
Blade: insulated
Tip: DIN 5264-A, ISO2380, conical blade, Lasertip
Handle: Kraftform® with anti-roll protection, multi-component
Standard: IEC 60900:2004

Model	mm				❐	METEL Code
0,6 x 3,5	0,6	3,5	100	81	10	HU000346
0,8 x 4,0 x 100	0,8	4,0	100	98	10	HU000347
1,0 x 5,5 x 125	1,0	5,5	125	98	10	HU000348
1,2 x 6,5 x 150	1,2	6,5	150	105	10	HU000349
1,2 x 8,0 x 175	1,2	8,0	175	112	05	HU000350

162 i PH VDE Phillips insulated screwdriver

NEW

Application: for Phillips screws
Blade: insulated
Tip: DIN 5260-PH, ISO8764-PH, Lasertip®
Handle: Kraftform® with anti-roll protection, multi-component
Standard: IEC 60900:2004

Model	⊕	mm		❐	METEL Code
PH0 x 80	PH0	80	81	5	HU000351
PH1 x 80	PH1	80	98	5	HU000352
PH2 x 100	PH2	100	105	5	HU000353
PH3 x 150	PH3	150	112	5	HU000354
PH4 x 200	PH4	200	112	2	HU000355

165 i PZ VDE Pozidriv insulated screwdriver

NEW

Application: for Pozidriv screws
Blade: insulated
Tip: ISO8764-PZ, Lasertip®
Handle: Kraftform® with anti-roll protection, multi-component
Standard: IEC 60900:2004

Model	⊕	mm		❐	METEL Code
PZ0 x 80	PZ0	80	81	5	HU000356
PZ1 x 80	PZ1	80	98	5	HU000357
PZ2 x 100	PZ2	100	105	5	HU000358
PZ3 X 150	PZ3	150	112	5	HU000359
PZ4 x 200	PZ4	200	112	2	HU000360

Screwdrivers for magnetothermic switches and RCDs

162 i PH/S VDE insulated screwdriver for PlusMinus screws (Phillips/slotted)

NEW

Application: for PlusMinus screws (Phillips /slotted)
Blade: insulated
Tip: PlusMInus (Phillips /slotted)
Handle: Kraftform® with anti-roll protection, multi-component
Standard: IEC 60900:2004

Model	⊕	mm		❐	METEL Code
PH/S1 x 80	#1	80	98	5	HU000361
PH/S2 x 100	#2	100	105	5	HU000362

165 i PZ/S VDE insulated screwdriver for PlusMinus screws (Pozidriv/slotted)

NEW

Application: for PlusMinus screws (Pozidriv /slotted)
Blade: insulated
Tip: PlusMInus (Pozidriv /slotted)
Handle: Kraftform® with anti-roll protection, multi-component
Standard: IEC 60900:2004

Model	⊕	mm		❐	METEL Code
PZ/S1 x 80	#1	80	98	5	HU000363
PZ/S2 x 100	#2	100	105	5	HU000364

Kit with screwdrivers

Kit of 6 screwdrivers VDE 1000V

NEW

Kit composed by:
4 insulated slotted screwdrivers
2 insulated Phillips screwdrivers

Model	Included	❐	METEL Code
K01S	**160 i 06 x 3,5 160 i 08 x 4,0 160 i 1,0 x 5,5 160 i 1,2 x 6,5 162 i PH1 x 80 162 i PH2 x 100**	5	HU000345

Kit of 4 screwdrivers VDE 1000V

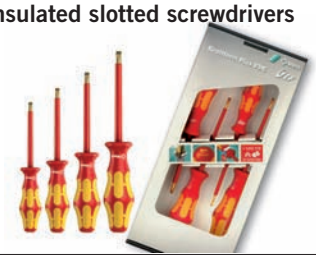
NEW

Kit composed by:
4 screwdrivers for **switchboards / RCDs**

Model	Included	❐	METEL Code
K02S	**PH/S1 x 80 PH/S2 x 100 PZ/S1 x 80 PZ/S2 x 100**	5	HU000367

Kit of 4 insulated slotted screwdrivers

NEW



Kit composed by:
4 insulated slotted screwdrivers

Model	Included	❐	METEL Code
K21	**0,6 x 3,5 0,8 x 4,0 x 100 1,0 x 5,5 x 125 1,2 x 6,5 x 150**	5	HU000498

Kit of 6 screwdrivers + lubricant

NEW

Kit composed by:
4 insulated slotted screwdrivers
2 insulated Phillips screwdrivers
1 bottle of lubricant for cleaning contacts

Model	Included	❐	METEL Code
K06B	**PH2 x 100 PH1 x 80 1,0 x 5,5 x 125 0,8 x 4,0 x 100 06 x 3,5 04 x 2,5 019002**	5	HU000514

Kit of 4 screwdrivers

NEW

Kit composed by:
4 insulated slotted screwdrivers
1 insulated Phillips screwdriver
1 insulated Pozidriv screwdriver

Model	Included	❐	METEL Code
K23	**0,6 x 3,5 0,8 x 4,0 x 100 PH2 x 100 PZ2 x 100**	5	HU000500

Kit of 4 insulated screwdrivers

NEW

Kit composed by:
2 insulated Phillips screwdriver
2 insulated Pozidriv screwdriver

Model	Included	❐	METEL Code
K24	**PH1 x 80 PH2 x 80 PZ1 x 80 PZ2 x 100**	5	HU000501

VDE Multipurpose pliers

VDE Multipurpose pliers
with cutter - DIN ISO 5746

Model		mm	g	❐	METEL Code
265/160		160	210	6	HU000371
265/180		180	265	6	HU000372
265/200		200	325	6	HU000373

VDE C60 combination plier
with cutter and optimized leverage and excentric joint - DIN ISO 5746

Model		mm	g	❐	METEL Code
265/202		200	325	3	HU000374

VDE Radio / Telephone pliers
with cutter and halfround jaws DIN ISO 5745

Model		mm	g	❐	METEL Code
235/160		160	145	3	HU000375
235/200		200	190	3	HU000376

VDE Radio / Telephone pliers
with cutter, nose bent 40° and halfround jaws - DIN ISO 5745

Model		mm	g	❐	METEL Code
236/200		200	190	1	HU000377

VDE Flat nose plier
with long nose - DIN ISO 5745

Model		mm	g	❐	METEL Code
215/160		160	145	1	HU000378

VDE Round nose plier
with long jaws - DIN ISO 5745

Model		mm	g	❐	METEL Code
225/160		160	140	1	HU000379

VDE HD diagonal cutter C60 pliers
for soft and piano wires - DIN ISO 5749

Model		mm	g	❐	METEL Code
245/180		180	260	1	HU000380
245/200		200	290	1	HU000381

VDE HD diagonal cutter pliers
for soft and hard wires - DIN ISO 5749

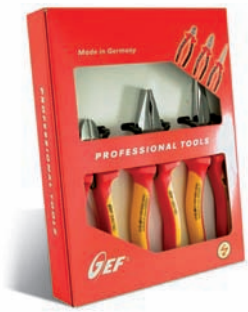
Model	mm	g	❐	METEL Code
240/160	160	220	6	HU000382
240/180	180	280	6	HU000383

VDE waterpump plier
with groove joint (7 positions) - DIN ISO 8976

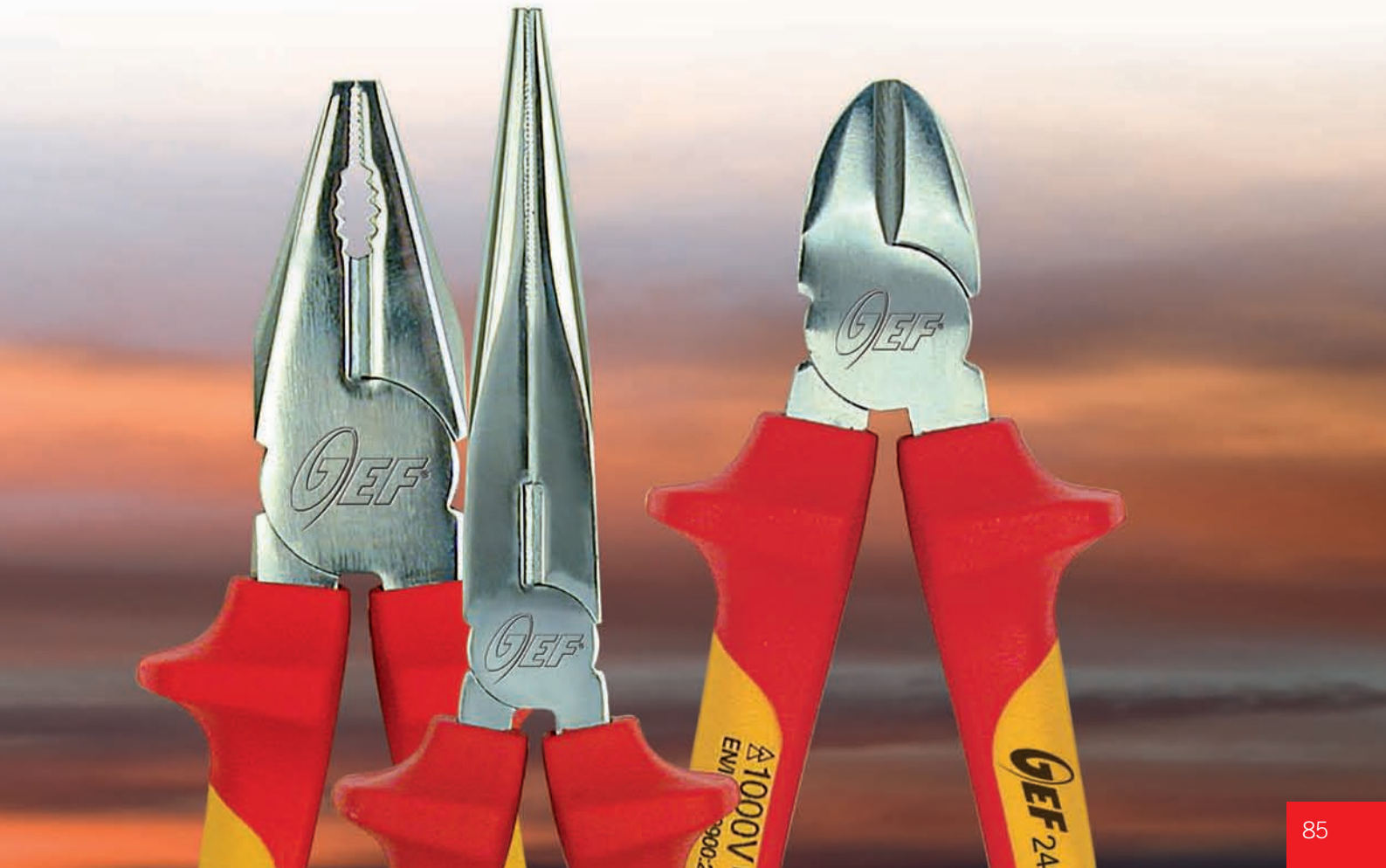
Model	mm	g	❐	METEL Code
280/250	250	350	1	HU000384

K03S - Set of 3 pliers

VDE set of 3 pliers



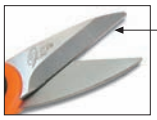
Model	Included	❐	METEL Code
K03S	N1 265/180 N1 240/160 N1 235/200	1	HU000368



Scissors and cable cutters

Professional scissor for installers

Ergonomic and strong
Stainless steel blade
Very cutting blade
Internal regulation blades removable with screwdriver.



Micro-tooth in one blade to prevent the slipping of the cable on cutting

Model	mm	g	❐	METEL Code
F15	170	60	24	HU000293

Nylon carrying scissor bag

NEW

Practical nylon carrying bag for F15 scissor, with belt clip

Model			❐	METEL Code
SP- 6238			10	HU000393

Multipurpose cutter

5 cutting interchangeable tempered steel supports safely fixed with screws
Performing plane cuttings, circular cuttings (25mm maximum diameter), 90° cutting and oblique with adjustable orientation
Ideal solution for perfect cutting on plastic surface (hard PVC pipes) rubber surface (resin pipes, cables, etc..) and various (plexiglass, nylon, etc…)

Model	mm	g	❐	METEL Code
F04	220	316	1	HU000292

Multipurpose scissor

With stainless steel blade
With adjustable screw tightening
With safety lock

Model	mm	g	❐	METEL Code
F02	180	110	1	HU000052

Cable cutter scissor

With stainless steel blade
With adjustable screw tightening
With safety lock
With cable cutter blade

Model	mm	g	❐	METEL Code
F03	160	110	1	HU000053

Knife cutter with blade protection

NEW

1000V

Special sharpen of blade
Ergonomic handle

Model	mm	blade mm	g	❐	METEL Code
F05	185	50	58	1	HU000510
Spare blade					
L05				4	HU000511

VDE 1000V cable cutters

C 1000V

Suitable for cutting copper and aluminium cables
With ratchet device
High cutting capacity

Model	mm	g		❐	METEL Code
SH320-1000V	260	600	32	1	HU000060
SH500-1000V	285	800	52	1	HU000040

Accuracy cable cutters

C 1000V

Sharpen and accurate temperate cable cutters. Ideal tool for continuous operations with high performance. Safety double injection handle according to EN60900 standard: temperate stainless and immersion in a oil bath

Model	mm	g		❐	METEL Code
20/160	160	225	16	1	HU000058
20/210	210	340	25	1	HU000057

VDE 1000V cable cutter

C 1000V

Minimum force requirements due to high gear ratio and at the innovative geometry of blades
Not deformable of blades
Initial and final cutting (first and second blade) for cables with maximum diameter of 25 mm
Sharpen and temperate blades

Accurate cuttings with one hand only
Tool not suitable for steel cables cuttings
Material: special forged steel

Model	4468 VDE	44V2 VDE		mm	g	❐	METEL Code
220/210	•	•		210	300	1	HU000385

16 mm cable cutter

NEW

C 1000V

Model	mm	g	❐	METEL Code
220/170	170	260	1	HU000504

SUPER INSTALLERS
Box with 10 tools

Model		❐	METEL Code
Super installers		1	HU000492
Code	*Description of internal parts*		
265/180	VDE1000V multipurpose plier	1	
240/160	VDE1000V diagonal cutter plier	1	
F15	Scissor for electricians	1	
235/200	VDE1000V halfround jaws plier	1	
0,6x3,5	VDE1000V screwdriver for slotted screws	1	
1,0x5,5X125	VDE1000V screwdriver for slotted screws	1	
PH1x80	VDE1000V Phillips screwdriver	1	
PH2x100	VDE1000V Phillips screwdriver	1	
PZ2x100	VDE1000V Pozidriv screwdriver	1	
CF19	Phase detector	1	
Empty box			
SP-4246		1	HU000270

PROF K4S
Small box with 4 tools

Model		❐	METEL Code
PROF K4S		1	HU000398
Code	*Description of internal parts*		
F15	Scissor for electricians	1	
0,6x3,5	VDE1000V screwdriver for slotted screws	1	
0,8x4,0x100	VDE1000V screwdriver for slotted screws	1	
PH1x80	VDE1000V Phillips screwdriver	1	
Empty small box			
SP-3216		13	HU000322

INSTALLERS
Medium box with 5 tools

Model		❐	METEL Code
INSTALLERS		1	HU000397
Code	*Description of internal parts*		
F15	Scissor for electricians	1	
0,6x3,5	VDE1000V screwdriver for slotted screws	1	
0,8x4,0x100	VDE1000V screwdriver for slotted screws	1	
265x180	VDE1000V multipurpose plier	1	
PH1x80	VDE1000V Phillips screwdriver	1	
Empty medium box			
SP-3215		1	HU000041

MAX INSTALLERS
Big box with 8 tools

Model		❐	METEL Code
MAX INSTALLERS		1	HU000399
Code	*Description of internal parts*		
F15	Scissor for electricians	1	
0,6x3,5	VDE1000V screwdriver for slotted screws	1	
0,8x4,0x100	VDE1000V screwdriver for slotted screws	1	
PH1x80	VDE1000V Phillips screwdriver	1	
PZ1x80	VDE1000V Pozidriv screwdriver	1	
265/180	VDE1000V multipurpose plier	1	
240/160	VDE1000V diagonal cutter plier	1	
CF19	Phase detector		
Empty big box			
SP-3214		1	HU000045

Jacket for installers

Jacket for electrician installers

Model		❐	METEL Code
SP-3225		1	HU000042

Hard carrying cases

Hard case with 11 tools

Material: high density polyethylene

Model	Sizes (mm)	❐	METEL Code
BO9	422 x 327 x 135	1	HU000420
Code	*Description of internal parts*		
VNO2	Small empty hard carrying case	1	
235/200	VDE1000V halfround jaws plier	1	
240/160	VDE1000V diagonal cutter plier	1	
265/180	VDE1000V multipurpose plier	1	
F15	Scissor for electricians	1	
CF19	Phase detector	1	
1,0x5,5x125	VDE1000V screwdriver for slotted screws	1	
0,8x4,0x100	VDE1000V screwdriver for slotted screws	1	
0,6x3,5	VDE1000V screwdriver for slotted screws	1	
PH/S1x80	VDE1000V PHS1 Phillips screwdrivers for RCSs protections	1	
PH1x80	VDE1000V PH1 Phillips screwdriver	1	
PH2x100	VDE1000V PH2 Phillips screwdriver	1	
Empty hard case			
VNO2		1	HU000423

Hard case with 15 tools

Material: high thickness ABS for more strength

Model	Sizes (mm)	❐	METEL Code
BO10	440 x 340 x 190	1	HU000419
Code	*Description of internal parts*		
VN03	Wide empty hard carrying case	1	
M3	Nylon flexible meter, 3m length	1	
950PKS/9SMN	Set of 9 allen keys	1	
265/160	VDE1000 multipurpose plier	1	
240/160	VDE1000V diagonal cutter plier	1	
235/160	VDE1000V halfround jaws plier	1	
400172	Universal key	1	
F15	Scissor for electricians	1	
CF19	Phase detector	1	
SF01	Wire stripper 0.5-6mm^2	1	
ZN02	Professional cutter	1	
0,6 x 3,5	VDE1000V screwdriver for slotted screws	1	
PH/S1x80	VDE1000V PHS1 Phillips screwdrivers for RCSs protections	1	
PH1x80	VDE1000V PH1 Phillips screwdriver	1	
PH2x100	VDE1000V PH2 Phillips screwdriver	1	
0,8x4,0x100	VDE1000V screwdriver for slotted screws	1	
Empty hard case			
VN03		1	HU000422

GEF carrying bags for tools

Internal sections for tools
Internal pockets for documents and tools
Closing with zipper lock and key
Ergonomic handle covered by leather

Carrying bag with N° 20 tools

Model		❐	METEL Code
61/19S		1	HU000400
Code	*Description of internal parts*		
SP-5404	Carrying bag with tools	1	
0,6x3,5	VDE1000V screwdriver for slotted screws	1	
0,8x4,0x100	VDE1000V screwdriver for slotted screws	1	
1,0x5,5x125	VDE1000V screwdriver for slotted screws	1	
1,2x6,5x150	VDE1000V screwdriver for slotted screws	1	
PH1x80	VDE1000V PH1 Phillips screwdriver	1	
PH2x100	VDE1000V PH2 Phillips screwdriver	1	
PH/S1x80	VDE1000V PHS1 Phillips screwdrivers for RCSs protections	1	
PH/S2x100	VDE1000V PHS1 Phillips screwdrivers for RCSs protections	1	
265/180	VDE1000V multipurpose plier	1	
240/160	VDE1000V diagonal cutter plier	1	
PC03	PC03 wire stripper 4.5-25mm	1	
SF03	Wire stripper and cutter cables 0.2-6mm	1	
F15	Scissor for electricians	1	
ZN02	Professional cutter	1	
CF19	Phase detector	1	
MT GR 300	Hammer with wood handle, 300g	1	
M5	Nylon flexible meter, 5m length	1	
400172	Universal key	1	
F03	Cutting cables scissor	1	

Carrying bag with N° 24 tools

Model		❐	METEL Code
61/23S		1	HU000401
Code	*Description of internal parts*		
SP-5404	Carrying bag with tools	1	
0,6x3,5	VDE1000V screwdriver for slotted screws	1	
0,8x4,0x100	VDE1000V screwdriver for slotted screws	1	
1,0x5,5x125	VDE1000V screwdriver for slotted screws	1	
1,2x6,5x150	VDE1000V screwdriver for slotted screws	1	
PH1x80	VDE1000V PH1 Phillips screwdriver	1	
PH2x100	VDE1000V PH2 Phillips screwdriver	1	
PH3x150	VDE1000V PH3 Phillips screwdriver	1	
PZ1x80	VDE1000V PZ3 Pozidriv screwdriver	1	
PH/S1x80	VDE1000V PHS1 Phillips screwdrivers for RCSs protections	1	
PH/S2x100	VDE1000V PHS1 Phillips screwdrivers for RCSs protections	1	
235/200	VDE1000V halfround jaws plier	1	
240/160	VDE1000V diagonal cutter plier	1	
265/180	VDE1000V Multipurpose plier	1	
280/250	VDE waterpump plier with 7 positions groove joint	1	
PC03	Wire stripper 4.5-25mm	1	
F03	Cutting cables scissor	1	
SF03	Wire stripper and cutter cables 0.2-6mm	1	
F15	Scissor for electricians	1	
ZN02	Professional cutter	1	
CF19	Phase detector	1	
MT GR 300	Hammer with wood handle, 300g	1	
M5	Nylon flexible meter, 5m length	1	
400172	Universal key	1	
TH87	Set of allen keys	1	

Hard empty carrying bag for tools

Model		❐	METEL Code
SP-5404		1	HU000321

Hard case with 21 tools

Material: aluminium

Model	Sizes (mm)	❐	METEL Code
BO8	430 x 332 x 160	1	HU000421
Codice	*Description of internal parts*		
VA01	Hard metal carrying case	1	
235/220	VDE1000V halfround jaws plier	1	
240/160	VDE1000V diagonal cutter plier	1	
265/180	VDE1000V multipurpose plier	1	
20/160	VDE1000V cable cutter 16mm	1	
MT GR 300	Hammer with wood handle, 300g	1	
M5	Nylon flexible meter, 5m length	1	
SH4010	Small saw for installers with 6 position blade	1	
950PKS/9SMN	Set of 9 allen keys	1	
92020	Aluminium spirit level with 21 cm thickness	1	
ZN02	Professional cutter	1	
400172	Universal key	1	
F15	Scissor for electricians	1	
CF19	Phase detector	1	
PH1x80	VDE1000V PH1 Phillips screwdriver	1	
1,0x5,5x125	VDE1000V screwdriver for slotted screws	1	
PZ1x80	VDE1000V PZ1 Pozidriv screwdriver	1	
0,8x4,0x100	VDE1000V screwdriver for slotted screws	1	
PH2x100	VDE1000V PH2 Phillips screwdriver	1	
PH/S2x100	VDE1000V PHS2 Phillips screwdrivers for RCSs	1	
PZ2x100	VDE1000V PZ2 Pozidriv screwdriver	1	
SAW-8D	Special key with ratchet	1	
VA01	**Hard empty carrying bag for tools**	1	HU000424

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